

I. INTRODUCTION AND OVERVIEW

WHAT IS A MASTER PLAN?

A Master Plan is comprehensive planning document that establishes long-term policy recommendations for a community's physical development, and outlines implementation strategies that address land use issues, transportation, community facilities and services, the local economy, and the environment. Chapter 41, Section 81D of the Massachusetts General Laws states:

"A planning board established in any city or town under section eighty-one shall make a master plan of such city or town or such part or parts thereof as said board may deem advisable and from time to time may extend or perfect such plan. Such plan shall be a statement, through text, maps, illustrations or other forms of communication that is designed to provide a basis for decision making regarding the long-term physical development of the municipality. The comprehensive plan shall be internally consistent in its policies, forecasts and standards."

In general, communities use the Master Planning process to understand and manage future growth and development in remaining undeveloped areas. While limited areas of Chelmsford may be subject to such development pressure in the future, much of the town is built out. Therefore, Chelmsford's 2010 Master Plan explored a broader range of issues focused on managing and guiding redevelopment over the last decade.

The Master Plan is one of the main policy tools utilized by the Board of Selectmen, Planning Board, the Zoning Board of Appeals, the Conservation Commission, and the Community Development Department, and other local decision-makers. It is important to note that the Master Plan does not replace other important policy documents prepared by the Town, such as the *Affordable Housing Production Plan* or the *Open Space and Recreation Plan*, but should be used to complement these planning documents.

The extensive public participation process utilized to help formulate the recommendations set forth in this Master Plan ensured that the document reflects the needs and desires of the community. However, in recognizing that communities change over time, the Master Plan should be viewed as a flexible and ever-evolving document. Therefore, the recommendations set forth should be periodically re-evaluated in the interim period before a new Master Plan is created to ensure that they continue to align with the needs of the community.

PREVIOUS MASTER PLANS IN CHELMSFORD

The Town of Chelmsford has prepared Master Plan documents several times over the past fifty years. The first master plan was developed 1963, and subsequent plans were completed in 1975, 1986 and 1996. In earlier versions of the Master Plan, much of the focus was on promoting development and economic growth to accommodate the burgeoning population and workforce in Town and the overall region. Between 1960 and 1990, for example, Chelmsford's total population increased by 114%, from 15,130 people to 32,383 people, while the total number of housing units increased by 160.3%, from 4,540 to 11,816 units. Similarly, between 1971 and 1991, the amount of developed land in Chelmsford grew by 112% (totaling 7,880.92 acres in the latter year), while the total undeveloped land decreased by -37.5% to 6,946.73 acres. These trends are indicative of a community that was rapidly growing, and developing land in accordance with its population increase.

By 1996, however, attention shifted toward striking a balance between continued economic and housing growth, and preserving the quality of life for residents of the town. For many, retaining quality of life meant preserving the Town's natural, social, and cultural resources in the face of encroaching development. Today, many believe that Chelmsford is approaching build-out capacity. The 2010 Master Plan was a comprehensive in-depth assessment and analysis of the Town. The emphasis and focus was on crafting a land use and zoning strategy that prioritized re-development and mixed uses.

THE 2020 MASTER PLAN DEVELOPMENT PROCESS

In late 2018, the Planning Board began discussions regarding the process for updating the 2020 Master Plan. In Spring 2019, the Town contacted their regional planning agency, Northern Middlesex Council of Governments (NMCOG), for technical assistance in updating the Master Plan.

In April 2019, the Planning Board appointed a Master Plan Update Committee comprised of nine voting members and the Town's Director of Community Development. The voting members of the Master Plan Committee are listed Table 1.1 on the following page, and the Committee's advisors are listed in Table 1.2. The Committee includes representation from the Board of Selectmen, Planning Board, Town Meeting, Community Preservation Committee, the business community, and town residents at large.

Table 1.1: Master Plan Committee Members, 2020

Member Name	Represents
Kenneth Lefebvre ,	Board of Selectmen
Nancy Araway	Planning Board
Donald Van Dyne (resigned April 2020)	Planning Board
Mike Raisbeck (replaced Van Dyne in May 2020)	Planning Board
Scott Rummel	Town Meeting Representative
William Murphy (replaced Linda Prescott in June 2019)	Town Meeting Representative
Linda Prescott (resigned in June 2019)	Community Preservation Committee
Joe Ready	Town Resident
George Zaharoolis	Former Master Plan Committee member

Table 1.2: Master Plan Advisors

Advisor	Affiliation
Evan Belansky	Community Development Director
Vivian Merrill	Recording Secretary
Jay Donovan	Northern Middlesex Council of Governments
Beverly Woods	Northern Middlesex Council of Governments

In May 2019, the Master Plan Committee began meeting bimonthly. The Committee determined that the focus of the 2020 plan would on developing an “update” rather than rewriting the entire document. As with previous editions of Chelmsford’s Master Plan, this document was prepared with extensive input and feedback from many stakeholders living and working in the community. Due to COVID-19, the public input process relied on a community-wide written survey, unlike previous editions that included a number of public input sessions held in-person. The survey was widely distributed and made available online and in paper form for an extended period of time, and closing in mid-April 2020. A total of 1,200 surveys were completed and many included extensive written comments.

Similar to previous editions, the Master Plan Committee invited stakeholders to provide input during at their bimonthly meetings. A list of the organizations and individuals interviewed as part of this public input process is provided below:

- Community Development Department
- Business Development Director
- Center Water District
- Conservation Commission
- Historic Commission
- Bicycle and Pedestrian Advisory Committee (BPAC)
- Town Manager
- Department of Public Works

All of the documents produced during the planning process were made available for public review and comment via the NMCOG website.

ORGANIZATION AND OVERVIEW OF THE 2020 CHELMSFORD MASTER PLAN

This section provides a summary of the organizational layout of the updated Master Plan document and includes the Vision Statement and goals adopted by the Master Plan Committee.

A. Contents of the 2020 Master Plan

This updated Master Plan for the Town of Chelmsford is organized into ten primary components. The Preface contains a letter from the Master Plan Committee to the residents of Chelmsford. The introductory section (Section I) provides an overview of the master plan process and a description of each chapter of the document.

Section II focuses on Land Use Planning and Zoning. In addition to a synopsis of past land use development patterns in Chelmsford, it offers a discussion of the Town's existing Zoning Bylaw and the types of uses permitted under these regulations. The Land Use and Zoning chapter includes a presentation of the issues and opportunities inherent to land use planning and zoning, as well as a set of recommendations for how to best move forward in a way that promotes economic prosperity without sacrificing the natural, historical, and cultural integrity of the community.

Section III looks at Transportation Planning in Chelmsford. It includes a description of the existing transportation network within the community, including commuting patterns within the town, traffic volumes, crash statistics and the current state of the Town's overall transportation infrastructure for all transportation modes (auto, transit, commuter rail, bicycle and pedestrian). As with other sections of the Master Plan, issues and opportunities related to transportation are presented and discussed, and a comprehensive list of recommendations is provided.

Section IV relies heavily on demographic and industry data to assess the current state of Economic Development in Chelmsford. The chapter begins with a brief economic profile of the community, followed by a discussion of existing economic and business conditions in town—paying special mind to the current economic crisis of the past two years. From there, community assets and liabilities are presented, followed by an infrastructure analysis, and an examination of commercial and industrial activity. Another important element of this chapter is the discussion about striking a balance between economic development and quality of life - a central theme throughout this plan. Based on this discussion, a list of economic development opportunities, including potential economic redevelopment sites, is presented. The chapter concludes with an

issues and opportunities discussion, coupled with a list of economic development recommendations.

Section V assesses Housing issues in Chelmsford. It begins with an overview of the various neighborhoods in Town, and then moves into an analysis of the existing conditions of the town's housing stock and housing market. Topics covered within this analysis include housing development and sales trends; housing needs, as determined by demographic data available for the community; affordable housing efforts in Chelmsford; issues, opportunities, and recommendations for sustainable housing production in the community.

Section VI focuses on the Natural Resources while Section VIII concentrates on the Cultural and Historic Resources of Chelmsford. These sections include a discussion of existing environmental, historical and cultural assets, and an analysis of the issues and opportunities inherent to natural, historical and cultural protection and preservation in Chelmsford. Finally, a set of recommendations about how best to conserve these important resources is presented.

Section VIII examines policy and planning issues related to Open Space and Recreation. Topics covered in this chapter include existing conditions, local capacity, open space and recreation planning efforts, and identified community needs. The chapter also includes an analysis of issues and opportunities, as well as a set of recommendations.

Section IX of the plan examines Municipal Facilities and Services. An inventory of existing town-owned facilities is provided and the physical characteristics and condition of each facility is assessed and described. Similarly, an inventory of town services is presented and opportunities for improving the efficiency and quality of service delivery are discussed. Similar to other sections, issues and opportunities regarding future facility and service needs is provided, along with a set of recommendations.

The final section of the Master Plan includes the Implementation Plan, which consists of a matrix containing each recommendation outlined in the Master Plan. The table identifies the town department, board, commission or committee with primary implementation responsibility for each specific recommendation. In addition, a timeframe for implementation is established.

B. The Master Plan Vision Statement

Over the course of the master plan development process, the Master Plan Committee has worked to craft and refine the town's Vision for the Future, which is presented below. The Master Plan has been created with an eye toward guiding the community in a fashion that will ultimately achieve this vision:

Chelmsford will continue to evolve and change over time, and will strive to make such changes in a manner that respects the shared values, needs, and desires of all residents, regardless of age, race, ethnicity, income levels or abilities. We will make every effort to maintain and enhance the quality of life for all who live and work here, by ensuring that: the town is safe and attractive, community character is preserved, our educational system is of the highest quality possible, and the local economy remains strong and vibrant. High priority will also be given to protecting and preserving natural resources, open space and the town's historic assets for generations to come. The future success of the Town will depend on town government, residents, non-profits, volunteers and the business community working collaboratively as partners to address present-day and future needs in the areas of housing, municipal service delivery, transportation, economic development, public health, energy and climate resilience, and age-friendly policies and programs. The Town has a strong record of forming effective partnerships and working in tandem to achieve common goals. We expect that this will continue and are confident that Chelmsford will remain a great place to live in the future.

C. Principal Goals of the Master Plan

The following seven (7) goals are the principal goals that have been used to guide the Master Plan development process. A set of sub-goals have also been established and are enumerated on the first page of each section of the plan.

- 1. Land Use and Zoning:** Manage and direct growth, including redevelopment and new development projects, in a manner consistent with the community's character and ensure that the Town's zoning and land use policies and practices are consistent with the approved Master Plan.
- 2. Economic Development:** Revitalize the Chelmsford economy by addressing the COVID-19 impacts through new businesses, resolving the sewer capacity issues, redeveloping aging vacant and for sale properties, utilizing the Economic Development Commission to market the community and attract "growth" businesses which enhance the town's tax base and create well-paying jobs in a manner that balances job creation with the quality of life.
- 3. Transportation and Circulation:** Improve and enhance the community's established transportation network by promoting alternative transportation modes, expanding public transit options, and implementing traffic improvements and techniques that are directed at alleviating congestion and improving safety.

4. **Housing:** Promote the development and maintenance of diverse and affordable housing opportunities for Chelmsford residents consistent with the community's character for all income levels, lifestyles and age groups.
5. **Natural Resources:** Protection of natural resources reduces flooding, improves water and air quality, reduces stormwater runoff and erosion, and protects wildlife habitat and corridors.
6. **Cultural and Historic Cultural Resources:** Maintain, protect and preserve the natural, cultural and historical resources that provide the town its unique identity and enhance the quality of life of its residents.
7. **Open Space and Recreation:** Manage, preserve and protect open space and recreation resources and invest in the expansion of these area in order to enhance the quality of life.
8. **Facilities and Services:** Provide high quality, cost effective and accessible services to meet the changing needs of the Town's residents and businesses.

II. LAND USE AND ZONING

INTRODUCTION

The Land Use and Zoning chapter of the Master Plan examines past development trends and current land use patterns within the community. Land use refers to the physical arrangement of a community's residential, commercial, industrial and institutional development, along with its transportation network, infrastructure and vacant land. Examining spatial development patterns, rates of change, and trends can provide insight into how the town evolved under varying social, economic and environmental conditions. Understanding land use change within a community is a key aspect of the overall Master Plan, and forms the basis for discussion regarding the future direction of the town.

Many individuals confuse land use with zoning. In the 1900s, local governments began to utilize zoning as a means for regulating the amount and location of development. Zoning is simply one tool that local officials may utilize to balance private property rights with the public interest in providing for orderly growth and change. In order to understand how zoning may aid in the accomplishment of community goals, this section of the Master Plan begins with a land use analysis which considers five aspects of Chelmsford's land use pattern:

- What are the features of Chelmsford's land use pattern?
- How did this pattern come about?
- What aspects of the town's land use pattern are essential to the character of the town?
- Is the existing land use pattern consistent with community goals?
- What opportunities exist to guide future development in a fashion consistent with community needs and goals?

Goal Statement: *Manage and direct growth, including redevelopment and new development, in a manner consistent with the community's character and ensure that the town's zoning and land use policies and practices are consistent with the needs and goals of the community.*

- *Give preference to reuse and redevelopment of existing structures and underdeveloped parcels over new development via incentivized redevelopment zoning, while ensuring that such projects are consistent with neighborhood character and respect the historic resources of the town.*
- *Maintain development and permitting policies that encourage a diverse economic base, provide new housing opportunities for Chelmsford residents of all income levels, and target development to appropriate locations.*
- *Reduce and eliminate land use conflicts to the greatest extent possible.*
- *Protect the character of the town's residential neighborhoods.*
- *Enhance the visual appearance of the community through the creation of design guidelines for appropriate areas.*
- *Encourage the preservation of green space in every redevelopment and development project, while striving to reduce the amount of impervious surface.*

Historical Background

A community's physical progression can be traced through its land use history. The Town of Chelmsford has a well-documented history, typified by the growth and development patterns traditionally found throughout New England. One time Native American trails became links between colonial farmsteads. Local taverns and inns served stagecoach routes that connected population centers. The heart of the community focused on the Common, where goods and services were provided for travelers and those residing in the predominantly agrarian community. Chelmsford Center has retained much of its New England village-style character, with small shops located in older, detached buildings, and historic homes which are still utilized as single-family residences.

In the era following World War II, the Town of Chelmsford not only saw a significant increase in population but also the emergence of a society dependent on the automobile. The development of the local highway network, particularly Interstate 495 and U.S. Route 3, brought new economic opportunities to the community, transforming Chelmsford from a rural town to mature suburb. As can be seen in Table 2.1 below, Chelmsford's population grew from 9,408 to 15,130 between 1950 and 1960, a growth rate of 60.8%. During the 1960s, the town population more than doubled from 15,130 to 31,432, making Chelmsford the fastest growing community in the Commonwealth during that time period. Since 1970, population growth has slowed considerably, as evidenced by the fact that the population only increased by approximately 11.6% from 1970 to 2017.

The land use pattern in Chelmsford reflects the substantial changes precipitated by postwar development. The town is a composite of development traditions, many of which pre-date zoning. While local regulations have shaped recent development, it has occurred against the backdrop of older, established neighborhoods. The input received during the Master Plan survey documented strong community support for respecting the composition of these neighborhoods as they are today.

Table 2.1: Population Trends: 1950-2017

Year	Population	% Change
1950	9,408	--
1960	15,130	60.8
1970	31,432	107.7
1980	31,174	-0.08
1990	33,383	3.9
2000	33,858	4.6
2010	33,802	-0.17
2017 (Estimated)	35,067	3.7

Source: 2010 U.S. Census and 2013-2017 American Community Survey

PAST LAND USE TRENDS

The development of any single tract of land seldom changes the overall character of a community. Over time, however, with the development of open land and the corresponding need for support services, changes in overall community character slowly evolved. Table 2.2 below outlines the changes in land use from 1971 to 2018. This data was compiled by the University of Massachusetts Amherst and NMCOG GIS through aerial photo interpretation. The 2018 UMass data is graphically displayed in the land use map on page 5. This information reflects that amount of land covered by a specific use based on physical attributes and is not parcel specific.

As outlined in Table 2.2, the most dramatic land use change occurred from 1971-1985, when 343 acres of commercial and industrial lands were developed. Although population growth in the community began to level out after 1970, an additional 716 acres of land were converted to residential use between 1971 and 1985. This is largely due to a decrease in household size and the formation of new households.

While residential development continued from 1971-1985, the growth in commercial and industrial development brought the most significant change. The Town's location was key to much of the economic growth that occurred during that period. Eastern Massachusetts experienced record commercial growth over the past few decades due to growth in the high technology sector. Chelmsford's advantageous location along Route 3 and I-495 was largely responsible for its economic vitality and its ability to attract new business and industry, and was a catalyst for the increase in industrial development.

During the period from 1985 to 1999, the rate of new development in Chelmsford slowed considerably, as evidenced in the land use change data. Commercial and industrial land uses grew by 30% and 28% respectively. Residential land uses increased by 13% during this same period. As can be seen in Table 2.2, since 1999, there has been minimal change in land use within the Town of Chelmsford. This can be attributed to a slowing economy and the nearly built-out nature of the community. As shown in Table 2.2, by 2018 approximately 66% of the town's land area was developed, with more than half of the town's land area in residential use.

Table 2.2: Land Use Change In Chelmsford, 1971-2018

Class of Land Use	Acres in Use					Percent Change				% of Town 2018
	1971	1985	1999	2005	2018	1971-1985	1985-1999	1999-2005	2005-2018	
Commercial ¹	238	334	435	470	486	40%	30%	8%	3%	3%
Industrial ²	207	454	584	559	555	119%	28%	-4%	-1%	4%

¹ The McConnell Land Use System defines "Commercial" land uses as general urban and shopping centers.

² The McConnell Land Use System defines "Industrial" land uses as light and heavy industrial.

Table 2.2: Land Use Change In Chelmsford, 1971-2018

Class of Land Use	Acres in Use					Percent Change				% of Town 2018
	1971	1985	1999	2005	2018	1971-1985	1985-1999	1999-2005	2005-2018	
Residential ³	5,763	6,479	7,303	7,385	7,473	12%	13%	1%	1%	51%
Other ⁴	8,569	7,510	6,456	6,364	6,264	-12%	-14%	-1%	-2%	42%
Summary										
Developed ⁵	7,201	8,403	9,435	9,570	9,683	17%	12%	1%	1%	66%
Undeveloped ⁶	7,577	6,375	5,343	5,208	5,095	-16%	-16%	-3%	-2%	34%
Total	14,778	14,778	14,778	14,778	14,778	N/A	N/A	N/A	N/A	100%

Source: MassGIS MacConnell Land Use (1951-1999) with corrections and 2005 and 2018 land use interpreted by NMCOG GIS. 2005 and 2018 land use data was interpreted at a scale of 1:4,000 using MassGIS 1:5000 Ortho Imagery (captured April 2005) and MassGIS's Licensed Six-Inch Google Ortho Imagery (captured Spring 2018).

Historical Master Planning and Zoning Efforts

The Town of Chelmsford has over fifty years of experience with long range master planning, with master plan documents completed in 1963, 1975, 1986, 1996, and 2010. The first three master plan documents were completed during periods of rapid growth and were primarily focus on responding to the impacts of that growth and planning for future development. However, the 1996 Master Plan began to focus on the quality as well as quantity of future growth. Section II of the 1996 Master Plan, entitled “Future Land Use Options”, presented three potential build out scenarios: Environmental, Economic and Composite. The document ultimately recommended the composite scenario. The 2010 Master Plan also presented two build out scenarios. The first of these build out scenarios was completed by NMCOG in 2008 and primarily focused on larger sized parcels that had significant contiguous developable uplands. A second build out analysis was conducted in 2010 by the Town’s Community Development Department to analyze development capacity of properties that have existing structures but that are not fully developed or utilized. This build-out concluded that the redevelopment of existing, underutilized land would have a significant impact on the Town.

The previous master plans resulted in comprehensive revisions to the Town’s zoning bylaw and map and were reflective of the community’s desires at that time. These changes directly influenced the historical land use patterns and trends, and established a framework for future development activity.

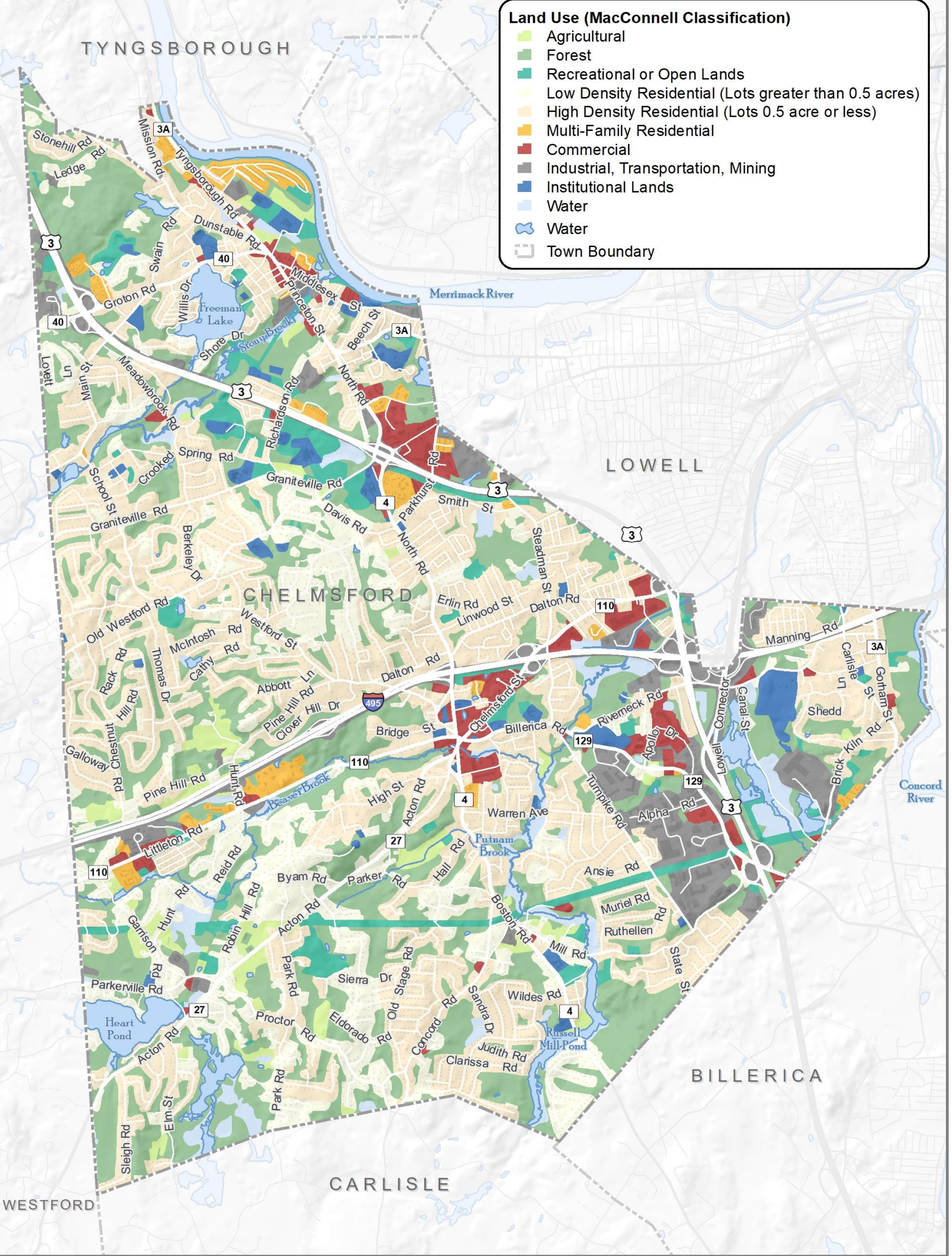
³ The McConnell Land Use System defines “Residential” land uses as of the following: multi-family, smaller than ¼ acre residential lots, ¼ - ½ acre residential lots and larger than ½ acre residential lots.

⁴ The McConnell Land Use System defines “Other” land uses as of the following: Cropland, Pasture, Forest, Wetland, Mining, Open Land, Participation, Spectator and Water Based Recreation, Salt Wetland, Urban Open, Transportation, Waste Disposal, Water and Woody Perennial.

⁵ The McConnell Land Use System defines “Developed” land uses as of the following: Participation, Spectator, and Water Based Recreation, Multi-Family Residential, High, Medium and Low Density Residential, Commercial, Industrial, Urban Open, Transportation and Waste Disposal uses.

⁶ The McConnell Land Use System defines “Undeveloped” land uses as of the following: Cropland, Pasture, Forest, Wetland, Mining, Open Land, Water and Woody Perennial uses.

Chelmsford Land Use per 2018 MacConnell Classification



Sources:
MassDOT/NMCOG (1999 MacConnell land use data with 2005 and 2018 land use interpreted by NMCOG, roads, town boundaries, structures, shaded relief); MassDEP/NMCOG (2005/2009 hydrography)

Notes: 1999 MacConnell land use data updated by NMCOG at 1:4000 scale using MassGIS's 2005 1:5000 ortho imagery and Spring 2018 MassGIS licensed Google imagery. Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.

Produced by NMCOG: 8/29/2019



0 2,000 Feet



**Northern Middlesex
Council of Governments**
40 Church Street, Suite 200
Lowell, Massachusetts 01852-2686
(978) 454-8021 nmco.org

LAND USE CHARACTERISTICS OF EXISTING PARCELS

Land use coverage information provided through the University of Massachusetts/MacConnell data differs significantly from parcel-based land use statistics. Since land use coverage information maps account for a community's entire geography, they include features such as open water and roadways. In contrast, tax assessor parcels maps represent land in recorded plans used to determine the appraised value of property. Given the different characteristics of these two data sources, it is not possible to directly compare one with the other, but both sources provide important insight into the development patterns within town and show similar trends. Table 2.3 below provides parcel-based land use statistics from the tax assessor's database for FY 2019. Map 2 on page 9 shows the land use pattern in Chelmsford based on tax assessment data.

Table 2.3: Current Uses Of Land In Chelmsford (2019)

Class of Use	Acres	% Total Acreage
Residential		
Single-Family Residential	7,000	55.94
Two-Family Residential	150	1.20
Three-Family Residential	31	0.25
Condominiums	371	2.97
Apartments with Four to Eight Units	12	0.10
Apartments with More Than Eight Units	7	0.60
Mobile Homes	38	0.30
Rooming and Boarding Houses	11	0.09
Total Residential	7,688	61.44
Commercial		
Hotels, Motels, and Nursing Homes	41	0.33
Storage Warehouses and Distribution Facilities	38	0.30
Retail Trade	160	1.28
Auto-Related Uses	35	0.28
Banks, General, and Medical Offices	160	1.28
Miscellaneous Commercial	16	0.13
Total Commercial	450	3.60
Industrial		
Manufacturing and R&D	461	3.69
Public Utilities	57	0.45
Total Industrial	518	4.14

Table 2.3: Current Uses of Land in Chelmsford (2019)

Class of Use	Acres	% Total Acreage
Government and Institutional		
Municipal	2,026	16.19
Colleges, Churches, 121A corp., Housing Auth. and Charitable Org.	455	3.64
State Conservation Land	21	0.17
State Land Excluding Conservation	106	0.85
Total Government and Institutional	2,608	20.85
Private Open Space		
Agricultural	217	1.74
Chapter 61, 61A, 61B Land	180	1.44
Vacant	851	6.80
Total Private Open Space	1,248	9.97
Grand Total	12,512	100.00

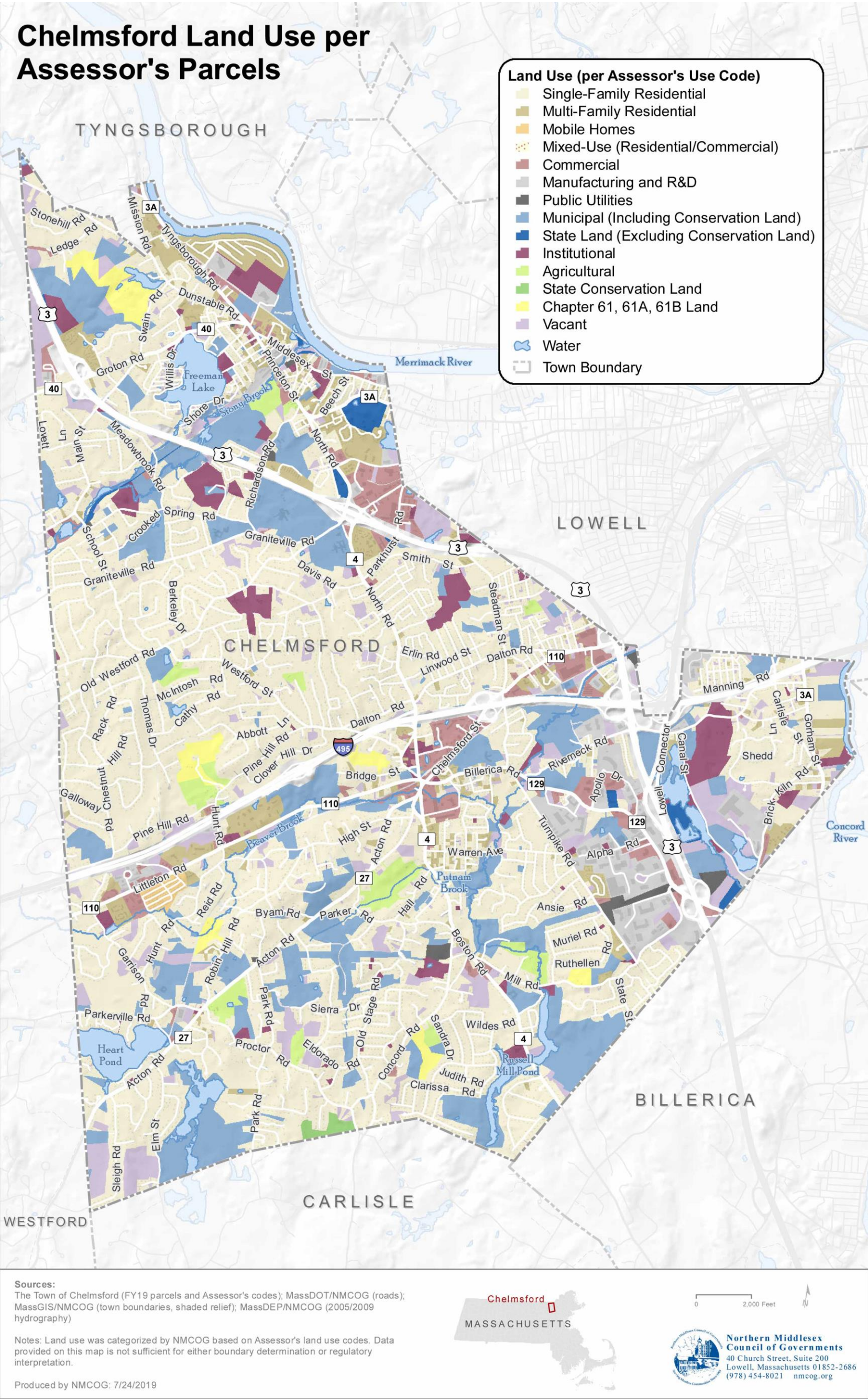
Source: Chelmsford Assessor's Database for FY 2019

Residential Land Uses

As shown in Table 2.3 above, 61% of the town's land is used for residential purposes, with 56% of the total land utilized for single-family residences. An overwhelming majority of the homes in Chelmsford are detached single-family residences built in tract subdivisions. An additional 5% of the community's acreage is occupied by other residential uses including condominiums, multi-family housing, and rooming/boarding houses. Residential uses are distributed consistently throughout town, with single-family homes being most prevalent in West Chelmsford, the Westlands, Ward Corner, South Chelmsford, and North Chelmsford. Homes clustered around the town's lakes and ponds reflect the character of a one-time vacation area with small-size lots and modest cottage-style houses, most of which have been converted to year-round residences.

Multifamily residences and condominiums are interspersed throughout town, with concentrations in North Chelmsford along Middlesex Street, Tyngsborough Road and on Littleton Road near the Westford town line. Condominiums represent approximately 5% of the residential land uses and 2.97% of the overall land use acreage. Two- and three-family homes make up a very small percentage (1.45%) of the overall land use in the town and only 2.36% of the residential land.

MAP 2.2: LAND USE BASED ON TAX ASSESSMENT DATA



Commercial Land Uses

Commercial land uses make up approximately 4% of the total land use area in town, according to the assessor's database. Chelmsford has a diverse commercial base comprised of retail, hotels, restaurants, financial establishments, and service type businesses. A diversity of land use types and varying patterns of commercial land use can be found throughout Chelmsford.

Shopping center and suburban retail plaza development is prevalent along Route 110 between the Center and Route 3, and within the Drum Hill area. Office/R&D development occupies much of land along Route 129 in the area of the Route 3 interchange. Smaller scale village-style businesses are found in Chelmsford Center and the Vinal Square area of North Chelmsford, while pockets of neighborhood-style retail establishments are interspersed throughout the community. Commercial development is generally concentrated in the following geographic areas:

Chelmsford Center

The historic commercial and civic center of Chelmsford provides a variety of retail, professional office and service businesses. The Town Hall and Town Library are located in close proximity to newer, automobile-oriented commercial retail establishments including a redeveloped commercial complex and strip-mall style development along



Retail uses in Chelmsford Center

Summer Street and Route 110. The heart of the town center contains a mix of specialty retail, restaurants and service type businesses, as well as the new Grist Mill residential development. Presently, redevelopment of the Odd Fellows building is under consideration.

Drum Hill and Technology Drive

Drum Hill is one of the town's major retail corridors. Located adjacent to Route 3, and bordering the City of Lowell, commercial land use patterns within the Drum Hill area consist of broad mix including professional offices, shopping centers, banks, restaurants, medical/surgical services, and a



Drum Hill commercial district

hotel. The commercial district is anchored by a supermarket and large discount

department store. The remaining retail activity consists primarily of medium-sized stores, serving local rather than regional needs.

Vinal Square/North Chelmsford

A small cluster of businesses is located in North Chelmsford around the historic village of Vinal Square. This area, located at the intersection of Route 40, Middlesex Street and Route 3A, is home to a variety of neighborhood retail and service businesses. Renovated historic mill complexes are located south of Vinal Square, along Middlesex Street and Route 3A, and provide office, industrial and additional retail space. Scattered pockets of neighborhood retail development can be found along Route 3A north of Vinal Square to the Tyngsborough town line.

South Chelmsford Village

South Chelmsford Village is a small historic village located along Route 27 and Maple Road and contains limited retail space, a local farm stand, and a few large industrial buildings.

Route 110/Littleton Road

Route 110 (Littleton Road) is the town's main east/west corridor and traverses the center of Town. The corridor accommodates a variety of retail and commercial businesses. The most densely developed portion of the roadway extends from Chelmsford Center, past the Interstate 495 interchange to the Lowell border near Route 3. This section of the corridor features large retail complexes, such as East Gate Plaza and the Chelmsford Mall, as well as smaller-scale retail and service establishments, small professional office properties and two hotels.

Industrial Land Uses

In 2019, approximately 518 acres or 4.14% of the town's tax parcels contained an industrial use. Industrial uses include utilities, manufacturing, research and development facilities, warehousing and wholesale establishments. Many of these establishments are located along Route 129, in the Drum Hill area, in the mill complexes in North Chelmsford, and along Route 3A north of Vinal Square. More extensive information regarding industrial development within Chelmsford can be found in the Economic Development section of this document.

Government and Institutional Land Uses

The Town of Chelmsford has a traditional group of institutional land uses consisting of government, charitable, religious and educational properties, which occupy 20.85% of the town's tax parcel acreage. The town owns 2,026 acres of land or 16.19% of the acreage included in the town's tax parcels. Charitable, non-profit, educational and religious entities own 455 acres, or approximately 3.64% of the town's tax parcel acreage. The Commonwealth of Massachusetts owns 127 acres, representing 1.01% of the overall land acreage.

ZONING OVERVIEW

Chelmsford regulates development through zoning, subdivision control, Board of Health regulations, and wetlands regulations. Zoning is the most important of these regulatory tools. In a mature suburb like Chelmsford, a zoning bylaw's capacity to steer redevelopment is as important as its capacity to guide the development of vacant land.

Chelmsford's zoning framework includes fifteen (15) conventional use districts (Map 3) and six (6) overlay districts (Map 4). A use district is a geographic area delineated on a zoning map and designated for specific land uses. Overlay districts are superimposed over the conventional use districts and are also delineated on the zoning map, except for the Floodplain District and the Aquifer Protection District, and may encourage or limit certain uses within one or more districts, depending on the purposes of the overlay. In Chelmsford, for example, projects are allowed within the Village Center Overlay District that would not otherwise be allowed in the underlying zoning district, while the Aquifer Protection District places restrictions on uses in addition to the restrictions placed by the underlying zoning district.

Each conventional use zoning district has dimensional and use requirements, and many uses require a special permit, i.e., an approval granted at the discretion of either the Zoning Board of Appeals or the Planning Board. The Planning Board exercises control over activities and uses that require site plan review. Table 2.4 identifies each zoning district and describes its intended use(s).

The Chelmsford Zoning Map and Bylaw has been subsequently updated after the completion of each Master Plan, with the most recent comprehensive zoning revision completed in 1998. Some examples of the zoning amendments approved by Town Meeting over the past several years include the following:

- Route 129 Business Amenities Overlay District (October 24, 2016)
- Inclusionary Housing Bylaw (October 19, 2015)
- Village Center Overlay District (April 28, 2014)
- Community Enhancement and Investment Overlay District (October 21, 2013)

Table 2.4: Current Zoning Districts and Intended Uses

Land Use Categories	Zoning District	Intended Uses
Low Density Residential	Residential A (RA)	At 100% single-family residential, these are the lowest density single-family residences.
	Residential B (RB)	Low density single-family residential.
Moderate Density Residential	Residential C (RC)	Medium density with 50% single-family residential and 50% duplex.
High Density Residential	Residential Multi-Family (RM)	High density residential district with 15% single-family, 5% duplex and 80% multi-family.
	Residential Mobile Home (RMH)	District for mobile homes.
Office & Commercial	Neighborhood Commercial (CA)	Commercial districts for neighborhood areas with a development mix of three-story buildings, 50% office and 50% retail.

Table 2.4: Current Zoning Districts and Intended Uses

Land Use Categories	Zoning District	Intended Uses
	Roadside Commercial (CB)	General commercial districts with high traffic generation and a development mix of 25% four-story office buildings, 65% single-story retail and 10% single-story restaurants.
	Shopping Center (CC)	Commercial districts designed to allow clustering of stores around a central parking area; it assumes a development mix of 80% single-story retail, 10% three-story office and 10% single-story restaurants.
	General Commercial (CD)	Primarily retail commercial offices (60%), restaurants (10%) and entertainment commercial uses (30%) located along major existing thoroughfares.
	Adult Entertainment District (CX)	This is a commercial district created for adult entertainment establishments and other permitted uses. There is only one CX District in town, located east of Route 3 and north of Route 40.
	Center Village (CV)	Mixed-use district intended to promote downtown revitalization
Industrial/High Tech	Limited Industrial (IA)	Primarily used for office, R & D, manufacturing (20%) and warehousing (20%).
	Special Industrial (IS)	Suited for heavy industrial, this use has a mix of 50% single-story manufacturing and 50% single-story warehouse.
Public/Semi-Public	Public (P)	Lands owned or leased by federal, state or municipal governments for governmental purposes.
Open Space/Recreation	Open Space (OS)	Privately owned lands used for open space.

Source: Town of Chelmsford Zoning Bylaw, Chapter 195

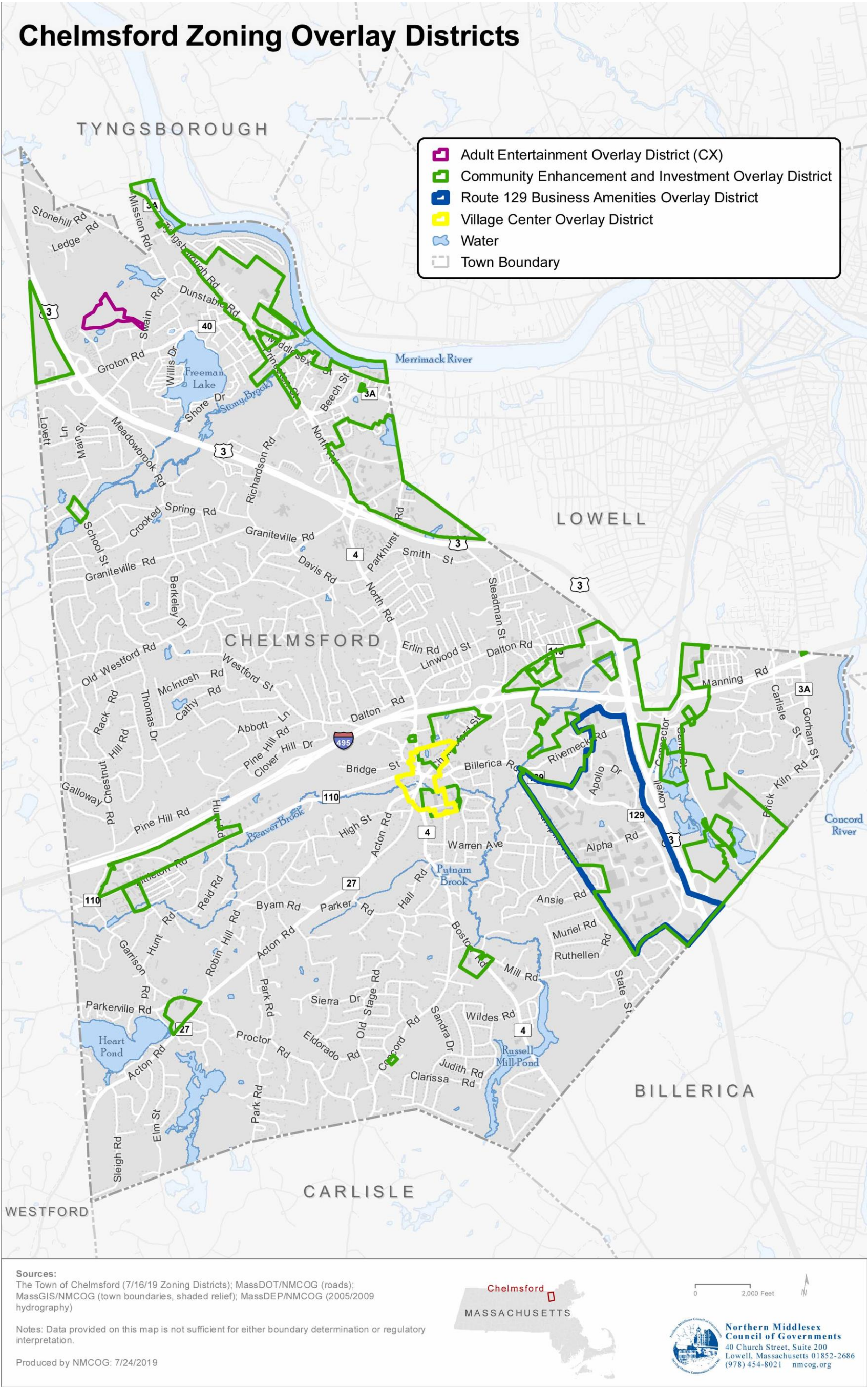
Table 2.5 summarizes the acreage for each zoning district. Approximately 73% of the town is zoned for residential use, with 65% zoned specifically for single-family residences. Commercial zoning districts (CA, CB, CC, CD, CV and CX) cover 3.64% of the community, while 10.80% of the town is zoned for industrial use. The public zoning district represents 12.15 % of the town and consists of lands owned or leased for governmental purposes.

Table 2.5: Zoning District Classifications

Zoning District	Acres	Percentage
Residential A (RA)	419.63	2.84%
Residential B (RB)	9,553.74	64.65%
Residential C (RC)	424.38	2.87%
Residential Multi-family (RM)	317.80	2.15%
Center Village (CV)	26.83	0.18%
Neighborhood Commercial (CA)	35.45	0.24%
Roadside Commercial (CB)	229.59	1.55%
Shopping Center (CC)	120.53	0.82%
General Commercial (CD)	100.95	0.68%
Adult Entertainment (CX)	24.99	0.17%
Limited Industrial (IA)	1,529.97	10.35%
Special Industrial (IS)	65.63	0.44%
Residential Mobile Home (RMH)	37.87	0.26%
Public (P)	1,795.36	12.15%
Open Space (OS)	94.94	0.64%
Total	14,777.67	100%

Source: Northern Middlesex Council of Governments

MAP 2.4: ZONING OVERLAY DISTRICTS



Residential Zoning

Chelmsford is predominately zoned for residential development. As a result, the town's residential zoning regulations will significantly impact its overall land use pattern at build-out, just as residential development already influences Chelmsford's land use pattern and character today. Chelmsford has four residential zones, all of which allow single-family dwellings. Two-family dwellings are allowed only in the RC and RM Districts; multifamily dwellings are allowed in the RM district and the Center Village (CV) only by Planning Board special permit. The minimum lot size for residential districts ranges from 20,000 to 60,000 square feet. Planned Open Space Residential Developments (POS) are only permitted in the RA and RB zoning districts, by special permit from the Planning Board. POS developments, however, require a minimum of 5 acres of land, with a minimum of 25% being set aside for open space.

There are several zoning provisions that have been adopted to specifically promote the development of specialized housing, such as: Article XVII, "Facilitated and Independent Senior Living Facilities", Article XII, multi-family dwellings, Section 195-13, conversion of dwelling units, and Article XXIII, Inclusionary Housing Bylaw. Facilitated and independent senior living facilities are not allowed within any residential zoning district except the Residential Multi-Family District (RM).

Special permit uses include multi-family dwellings in RM and CV Districts, conversion of dwellings in the RB and RM Districts, and facilitated and independent senior living facilities in the RM and all commercial districts. Accessory dwelling units are not permitted in any of the residential zoning districts within the Town other than the Center Village District.

Residential A

The Residential A (RA) District was adopted in 1998 to protect the groundwater supply. It covers 419 acres (2.84%) and is a conventional district for single-family homes. Like RB and RC, boardinghouses are permitted in RA by special permit from the Board of Appeals. Areas included in the RA zoning district can be found throughout town, including portions of West Chelmsford and North Chelmsford, and areas off Steadman Street, along Route 27, and along Route 4 south of the Center.

The RA district is the lowest density residential zoning district in Chelmsford, with a minimum lot area of 60,000 sq. ft. required. A minimum frontage of 150 feet is needed and structures must be set back at least 40 feet from the road, 25 feet from the side boundary of the lot, and 30 feet from the rear boundary. Buildings height is capped at the traditional suburban maximum of 35 feet or 3 stories.

Residential B

The Residential B (RB) district was adopted in 1998 and covers approximately 9,533.74 (64.65%) acres of land. It is the dominant residential district in Chelmsford. The RB district requires a minimum lot area of 40,000 sq. ft. and a minimum lot frontage of 150 feet. As is the case in the RA district, structures must be set back at least 40 feet from the road, 25 feet from the side boundary of the lot, and 30 feet from the rear boundary. There are, however, differences in the dimensional requirements for the RA and RB zoning districts, specifically in the maximum building coverage (15% in RB and 10% in RA) and the floor area ratio (.20 in RB and .15 in RA). Building height in the RB zoning is limited to 35 feet or 3 stories.

Residential C

The Residential C (RC) zoning district allows for single-family homes on moderate-density lots of 20,000 sq. ft. with a minimum lot frontage of 125 feet. Structures must be set back at least 20 feet from the road, 12 feet from the side boundary of the lot, and 20 feet from the rear boundary. Building height is restricted to 35 feet or 3 stories.

The RC district covers only 424.38 (2.87%) acres of land and allows for flexible residential uses including single-family residences and duplexes, which are permitted by right within the district. Like RA and RB, boardinghouses are permitted in RC by special permit from the Board of Appeals. This zoning district is most prevalent in North Chelmsford and in an area just southeast of the Town Center.

Residential Multi-Family

The Residential Multi-Family District (RM) was adopted in 1998 and allows for high-density residential development. Single-family residences, two-family residences and owner-occupied boardinghouses are permitted by right, and multi-family dwellings are allowed by special permit from the Planning Board. The RM district requires a minimum lot area of 40,000 sq. ft. and minimum lot frontage of 150 feet. The dimensional requirements are identical for RB and RM districts, except that the RM district has a floor area ratio of .30 compared to the RB district floor area ratio of .20. It is important to note that projects constructed in the RM district must comply with additional minimum yard requirements when abutting an RA or RB district.

The RM district covers approximately 317.80 (2.15%) acres of land, and allows for the widest array of permitted uses among town's residential districts. The RM district is designed to bring greater housing options to persons and families with a limited income. Under Section 195-63 of the town's zoning bylaw, the Planning Board may grant a density bonus of 10% to an applicant willing to set aside 10% of the units for low and moderate income persons and families, for a period of at least ten years.

Facilitated and Independent Senior Living Facilities

Through zoning changes adopted in 1998, Facilitated and Independent Senior Living Facilities are allowed in a variety of zoning districts by Planning Board special permit, in order to promote the development of multifamily and communal housing most beneficial for the senior and elder population. Facilitated living accommodates persons who require some medical attention or supervision, and includes assisted living facilities, Alzheimer's facilities and congregate living facilities. Independent facilities are intended for a senior couple or individual who can live independently.

Development of Facilitated and Independent Senior Living Facilities requires a minimum lot area of five acres in most zoning districts, except for the CV district where only 3 acres are required, and the IA district where the minimum lot area requirement is 7 acres. The maximum number of units per acre allowed for facilitated living facilities is 7 in most zoning districts, except for the RM district where 8 units per acre are permitted. The maximum number of units per acre allowed for independent senior living facilities is 4 units for most zoning districts, except for the RM district where 8 units are allowed, and the CV district where 7 units are allowed. Any Facilitated and Independent Senior Living Facilities development must preserve at least 30% of the site as open space in all but the RM District, where there is no minimum open space requirement.

The Planning Board may grant a density bonus for a facilitated and independent senior living facilities project that provides rental units. Where there is more than one size or style of unit in a project, the affordable units must comprise the same percentage as the market rate units. One-half of all additional units created through the density bonus must be maintained as affordable, according to the HUD Section 8 Voucher Program or other such programs deemed agreeable by the Planning Board. Alternatively, the developer may make a contribution under MGL Chapter 44, Section 53A, for the creation of senior affordable housing.

Planned Open Space Development

Originally adopted in 1988 as cluster development, Planned Open Space (POS) residential developments are allowed by Planning Board special permit to promote the conservation of open space and efficient use of land. Developable land must be in an RA or RB zoning district, and a minimum lot size of 5 acres is required. The project must be permitted as a subdivision with a minimum lot size of 12,000 square feet. The number of dwelling units allowed may not exceed the number of units allowed under the base zoning. At least 25% of the site must consist of contiguous open space. The percentage of open space that is classified as wetland must not exceed the percentage of the overall site classified as wetland unless the applicant demonstrates that inclusion of a greater percentage of wetlands promotes the purposes of Article XVIII.

All Planned Open Space Developments must be governed by a homeowners association established as a non-profit organization or other legal entity under the laws of the Commonwealth. The homeowners association is responsible for the use, care and maintenance of lands and improvements. Membership in the homeowners association is mandatory for all landowners within the POS development.

Commercial and Industrial Zoning

The Town of Chelmsford encourages commercial and industrial development in eight distinct zoning districts: Limited Industrial (IA), Special Industrial (IS), General Commercial (CD), Shopping Center (CC), Roadside Commercial (CB), Neighborhood Commercial (CA), Center Village (CV), and Adult Entertainment (CX). These zoning districts differ in terms of purpose, goals and requirements, as does their impact on the town from both a physical and fiscal perspective. Land zoned for commercial development comprises 511.51 acres of land, or 3.46% of the town's total area, while industrially zoned land comprises 1,595.61 acres or 10.8%.

Limited Industrial District

Adopted in 1963, the Limited Industrial District (IA) is the largest industrial zoning district in Chelmsford, covering 1,529.97 (10.35%) acres of land. The minimum lot size in the IA zone is 40,000 square feet, with 150 feet of frontage. Maximum building height allowed within the district is 45 feet or 4 stories. Forty percent lot coverage and a .45 floor area ratio are allowed within the district.



Route 129 Technology Corridor (Source: Pictometry International)

The IA district consists primarily of office uses, research and development, light manufacturing and warehousing. Professional offices, medical centers, wood operations and wireless communications facilities are other uses allowed by right. Contractor's yards, motel, hotels, health clubs, and self-storage mini-warehouse are allowed by special permit.

This is the primary zoning district encompassing the Route 129 technology corridor, by far the largest office and industrial area in Town. Smaller, but sizable IA zoned areas can be found on the west side of Route 3 at the Route 40 exit, the east side of Route 3A near Tyngsborough border, at the mills in North Chelmsford, near Wellman Avenue in North Chelmsford, Technology Drive near Drum Hill, the Glenview Sand and Gravel parcel near Jean Street, Katrina Road off Route 110 near the Route 3, and a small area off Maple Road in South Chelmsford.

Of the two (2) industrial zoning districts in Chelmsford, the IA District is the only industrial zone in which residential uses of any kind are allowed by special permit – facilitated and independent senior living and group residences. The IA District also allows adult daycare facilities by special permit.

Special Industrial District

Adopted in 1998, the Special Industrial District (IS) is intended for heavy industrial uses. A wide variety of uses are allowed by right including transport terminals, wood operations, light manufacturing, educational uses, and wireless communications facilities. Granite operations and childcare facilities are allowed only with a Special Permit. The minimum lot size in the IS zone is 40,000 square feet, with 150 feet of frontage. Maximum building height permitted within the district is 45 feet or 4 stories. Thirty percent lot coverage and a .45 floor area ratio are allowed within the district.

This zoning district is limited to a 66-acre town-owned parcel off Swain Road, to the north of the Route 40 Exit on Route 3. This parcel is currently land-locked and sits adjacent to the Swain Road landfill, which is currently zoned for adult entertainment and various commercial and institutional uses.

General Commercial District

Adopted in 1963, the General Commercial District (CD) encompasses 101 acres of land, less than 1% of the town's land area. Uses allowed within the district include retail, commercial offices, restaurants, indoor recreation facilities under 10,000 square feet and commercial entertainment uses. Wireless communications facilities are also permitted by right. Motels, indoor recreation facilities over 10,000 square feet, auto repair and health clubs are allowed by special permit.

There are two primary areas in the town with a CD zoning designation: Route 110 between the Center and I-495 and Vinal Square and a portion of the North Chelmsford mills, as well as smaller areas next to the Drum Hill Technology Park, between North Road and Worthen Street, and on Route 110 near Seneca Avenue. The minimum lot size in the CD zone is 10,000 square feet, with 50 feet of frontage. Maximum building height permitted within the district is 45 feet or 4 stories. Forty percent lot coverage and a .45 floor area ratio are allowed within the district.

Shopping Center District

Adopted in 1963, the Shopping Center District (CC) is designed to allow the clustering of stores, offices, etc., around a central parking area. The CC zone encompasses 121 acres of land within Chelmsford, and represents less than 1% of the town's land area. The minimum lot size in the CD zone is 100,000 square feet, with 200 feet of frontage. Maximum building height allowed

within the district is 35 feet or 3 stories. Thirty percent lot coverage and a .45 floor area ratio are permitted within the district.

Allowed uses are similar to the CD District. In addition, indoor commercial recreation over 10,000 square feet are allowed by right and fast food restaurants with drive-thrus, clubs or lodges are allowed by special permit. Wireless communications facilities are also permitted by right in the CC District. There are three such areas in town: Drum Hill, Route 110 near the Lowell border (Eastgate Plaza, Chelmsford Mall) and the Stop and Shop Plaza/Summer Street area near the Town Center.

Roadside Commercial District

Adopted in 1967, the Roadside Commercial District (CB) is a general commercial district, and includes uses that are high traffic generators. The CB district encompasses 230 acres of land, representing less than 2% of the town's land area. The minimum lot size in the CB zone is 40,000 square feet, with 150 feet of frontage. Maximum building height allowed within the district is 45 feet or 4 stories. Thirty percent lot coverage and a .45 floor area ratio are allowed within the district. Allowable uses within the CB district are similar to the CC District, except that mini storage is also allowed by special permit. Uses allowed by right include clubs or lodges, motels/hotels, motor vehicle sales, vehicle service and repair, and wireless communications facilities.

CB Districts are located throughout town, including along Route 110 near the Westford border, Route 3A north and south of Vinal Square, Middlesex Street near the Lowell line, the north side of Drum Hill Road, Parkhurst Road, and along Route 110 east of Route 495. A small area in South Chelmsford along Maple Road also has this designation.

Neighborhood Commercial District

Adopted in 1963, the Neighborhood Commercial District (CA) is intended for small retail establishments (less than 3,000 square feet) and professional offices serving neighborhood needs. The CA district comprises approximately 42 acres, including parcels in South Chelmsford Village, along Route 110 in the Westlands, West Chelmsford village, and at the intersection of Route 4 and Mill Road, near the Billerica line. The minimum lot size in the CA zone is 20,000 square feet, with 125 feet of frontage. Maximum building height allowed within the district is 35 feet or 3 stories. Fifteen percent lot coverage and a .45 floor area ratio are allowed within the district.

Center Village District

Adopted in 1998, the Center Village District (CV) was designed for maintaining the village-style character of the Town Center. The CV District encompasses 27 acres of land and is Chelmsford's only true mixed-used district, allowing commercial and residential uses (multifamily housing). Uses allowed by right include offices, banks without drive-thrus, medical offices or centers, restaurants, and fast food restaurants. Restaurants over 10,000 square feet, motels or hotels, and fast food restaurants over 2,500 square feet are allowed by special permit.



Chelmsford Center Village District

Restaurants with drive-thrus are prohibited. The minimum building height requirement is 20 feet and the maximum building height allowed within the district is 35 feet or 3 stories, and a minimum of 50 feet of frontage is required. Forty percent lot coverage and a .60 floor area ratio are allowed within the district. Neither the Table of Dimensional Requirements nor zoning section 195-98.2 include a minimum lot size for the CV zone.

The intent of Center Village (CV) Zoning is to aid in revitalizing, preserving and expanding the village character of Chelmsford's traditional business district. The bylaw encourages small business development and residential uses as an accessory use in certain areas. Parking requirements are reduced by up to 50%, and shared parking is encouraged, in order to promote a pedestrian-friendly environment. Multi-family dwellings and facilitated and independent senior living facilities are the only residential uses allowed in the CV District, and require a special permit from the Planning Board.

Adult Entertainment District

The Adult Entertainment District (CX) is a commercial district created for adult entertainment establishments. Other uses allowed by right within the district include business and professional offices and municipal facilities. There is only one CX District in town, located east of Route 3 and north of Route 40. The CX zone encompasses 25 acres of land and is located at the former Swain Road landfill. The minimum lot size in the CX zone is 40,000 square feet, with 150 feet of frontage. Maximum building height allowed within the district is 45 feet or 4 stories. Thirty percent lot coverage and a .45 floor area ratio are allowed within the district.

In addition to the CX District, an Adult Entertainment Overlay District was established and is subject to the use regulations pertaining to the CX District. The Adult Entertainment Overlay District is discussed below with Chelmsford's other overlay districts.

Major Business Complexes

Adopted in 1983, the Major Business Complexes provision within the town's zoning bylaw is intended to increase the diversity and convenience of goods and services, and to provide entrepreneurial and employment opportunities for area residents. It is also intended to focus development in locations that are able to support business development with relatively minimal environmental or municipal costs. Any industrial or commercial development of more than 20,000 square feet in gross floor area is considered a major business complex and requires a Special Permit from the Planning Board.

Home Occupations

Chelmsford's home occupation bylaw was amended in 2013 and is similar to that of other communities. Home occupations as of right include businesses or professions incidental to and customarily associated with the principal residential use, as long as the business only employs members of the household. The bylaw, however, seems restrictive in light of the town's suburban character and development pattern, and in light of the current economic climate. For example, the bylaw only allows one non-resident to perform work in the home occupation at any one time, and having a non-resident employee requires a special permit by the Zoning Board of Appeals (ZBA). It is common for home occupations or at-home business regulations to limit the number of non-resident employees, but it is equally common to provide some flexibility by allowing the ZBA to grant exceptions by special permit.

Public and Open Space Districts

Public District

Adopted in 1988, the Public District (P) is composed of lands that are owned and leased by federal, state or municipal governments for governmental purposes. The P District encompasses 1,795 acres (12.15% of the town's land area) scattered throughout town. The minimum lot size in the P district is 20,000 square feet, with 125 feet of frontage. Maximum building height allowed within the district is 35 feet or 3 stories. Fifteen percent lot coverage is



Farmers' market and art festival located at the Town Center Common

allowed within the district.

Uses allowed by right within the P district include religious and educational institutions, agricultural uses, wine and dairy facilities, cemeteries, municipal facilities and garages, and wireless communication facilities. The following uses are allowed by special permit: child-care facilities, essential services, indoor and outdoor commercial recreation facilities including golf courses, club/lodge, riding academy and fairs/carnivals. Essential services are defined as services provided by a public service corporation or by a governmental agency through erection, construction, alteration or maintenance of gas, electrical, steam, water or sewer transmission/distribution systems, or communication systems, whether underground or overhead, but not including wireless communications facilities. Facilities necessary for the provision of essential services include poles, wires, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants and other similar equipment.

Open Space District

Adopted in 1988, the Open Space District (OS) is composed of privately-owned lands used for open space. The OS district encompasses 95 acres, or less than 1% of the town's land area. The minimum lot size in the OS district is 20,000 square feet, with 125 feet of frontage. Maximum building height allowed within the district is 35 feet or 3 stories. Fifteen percent lot coverage is allowed within the OS district.

Uses allowed by right within the OS district include religious and educational institutions, agricultural purposes, wine and dairy facilities, municipal facilities, indoor/outdoor commercial recreation facilities including golf courses, club/lodge and health club. The following uses require a special permit: child-care facilities, essential services, riding academy, wireless communications facilities and fairs/carnivals. For more information pertaining to open space, refer to the Natural Resources and Open Space section of this Plan.

Overlay Districts

Chelmsford has six (6) zoning overlay districts: the Aquifer Protection Overlay District, the Floodplain Overlay District, the Adult Entertainment Overlay District, the Community Enhancement and Investment Overlay District, the Village Center Overlay District, and the Route 129 Business Amenities Overlay District. The Billboard Overlay District was repealed at Town Meeting on April 29, 2013. Each district is discussed in greater detail below.

Aquifer Protection Overlay District

Adopted in 1988, the Aquifer Protection Overlay District consists of three (3) separate Wellhead Protection Areas (WHPAs) within Chelmsford, as defined by the Massachusetts Department of Environmental Protection (DEP). Zone I includes a 400 ft. radius around the wellhead (assuming a greater than 100,000 gpd withdrawal rate). Zone II includes all land deemed influential to the quality and quantity of water drawn from a well under stressed pumping

conditions (i.e., the recharge area), and Zone III includes the larger watershed surrounding a water supply.

Development in the Aquifer Protection Overlay District is subject to regulations that supersede the requirements of the underlying districts. Much like the Massachusetts DEP's model regulation, Chelmsford's bylaw prohibits uses that pose a heightened risk to public drinking water supplies, such as landfills, chemical storage, hazardous waste facilities, and junkyards. Some uses are subject to a special permit from the Planning Board if located within the Aquifer Protection Overlay District, such as motor vehicle repair facility, dry cleaners with on-site cleaning facilities, dam construction, salt storage facilities/sheds, and furniture and wood stripping operations, to name a few. Also, the enlargement or alteration of existing uses that are nonconforming in the Overlay District would be subject to a special permit, as described in Section 195-73 of the Zoning By-law.

Floodplain Overlay District

Adopted in 1977, Chelmsford's Floodplain Overlay District is similar to that of other communities across the Commonwealth. It includes all areas within the 100-year floodplain and floodways shown on the most recent Flood Insurance Rate Maps (FIRM) prepared by FEMA.. The 100-year flood zones are Special Flood Hazard Areas (SFHA), with a 1% annual chance of flooding. Regardless of the underlying zoning district use regulations, the Floodplain Overlay District limits permitted uses to those unlikely to cause flooding in a 100-year storm event.

The Floodplain Overlay District is established as an overlay district to all other districts. All development in the district, including structural and nonstructural activities, whether permitted by right or special permit, must be in compliance with M.G.L. c. 131, § 40. The Zoning Board of Appeals can grant a special permit for new construction in the floodplain, as long as the applicant demonstrates that a proposed project conforms to the State Building Code and provides an engineer's certification that it will not increase flood levels during the 100-year flood.

Adult Entertainment Overlay District

An Adult Entertainment Overlay District was established in addition to the (CX) Adult Entertainment District discussed previously, and is subject to the same use regulations as the CX District. Within the overlay district, special permits are required from the Zoning Board of Appeals, and cannot be granted for an adult use establishment if it is located less than 1,000 feet from another adult entertainment establishment, a residential use, a public or private nursery and day care school, a public or private kindergarten, a public or private elementary or secondary school, a playground or park, or a religious institution.

Community Enhancement and Investment Overlay District

The Community Enhancement and Investment Overlay District (CEIOD) was adopted at the October 21, 2013 Town Meeting in order to provide an incentive for the redevelopment of property, prevent the deterioration of obsolete land and buildings, support the expansion of small businesses and the growth of commercial districts, and encourage appropriate site design. CEIOD projects have alternative dimensional requirements for each zoning district, and these are generally less restrictive than the standard requirements for the underlying zone.

There are four (4) types of CEIOD projects defined by the zoning bylaw: Adaptive Reuse Projects (ARP), Commercial or Industrial Redevelopment Projects (CIRP), Residential Reuse or Redevelopment Projects (RRRP) and Sustainable Infill Development Projects (SIDP). CEIOD projects are allowed on properties that have nonconforming uses, structures or parking lots, and sites or buildings determined to be vacant, obsolete or underutilized. The Planning Board determines if a project qualifies as a CEIOD project. The criteria to determine whether a CEIOD project is by right or requires a special permit includes the gross square footage of building area, the extent of noncompliance with underlying dimensional requirements, and number of residential units (if applicable). In addition, the Zoning Bylaw includes performance standards that developments must be consistent with in order to qualify as CEIOD projects. With the exception of multifamily residential units which are permitted in all of the CEIOD Overlay other than the IA district, the allowed uses are determined by the underlying zoning district.

Village Center Overlay District

The Village Center Overlay District (VCOD) was adopted by Town Meeting on April 28, 2014 in order to maintain the character enhance the vitality of Chelmsford's village center by promoting appropriate mixed-use, pedestrian-friendly development. Mixed-use projects are allowed within the VCOD that would not otherwise be allowed in the underlying zoning district, but such projects must the VCOD standards defined in the zoning bylaw. The additional uses permitted in the VCOD are small mixed-use buildings (up to 10,000 gross floor area), medium mixed-use buildings (up to 20,000 gross floor area), commercial buildings, live/work units, rowhouses or townhouses, multifamily buildings, and community buildings and space.

Standards for VCOD project include residential uses be located above the first floor or within 40 feet from the public street right-of-way and outside of the VCOD frontage zone. VCOD standards also include landscaping requirements, additional setbacks along Beaver Brook and the Bruce Freeman Trail, building design and building placement standards, open space requirements, and design standards.

Route 129 Business Amenities Overlay District

The Route 129 Business Amenities Overlay District (BAOD) was adopted at the October 24, 2016 Town Meeting in order to provide employers and employees in the Limited Industrial (IA)

zoning district with local access to goods, services and other business amenities, to promote quality development in the Route 129 area, and provide appropriate housing opportunities in the area. In addition to uses allowed in the underlying IA District, retail store and services, restaurants, fast food restaurants, banks, health clubs, car rental services, and hotels/motels are permitted by right, and multifamily residential units and certain drive-thrus for freestanding single-tenant uses are allowed by special permit.

DEVELOPMENT STANDARDS

Chelmsford has adopted development standards or requirements that govern site design, off-street parking and loading, environmental standards, landscaping, signage and outdoor lighting, especially in the commercial and industrial zoning districts. The Site Plan review process as well as landscaping, parking and signage requirements, are outlined in the following narrative.

Site Plan Review

The Massachusetts Zoning Act does not specifically authorize site plan review, but the courts have upheld it as valid exercise of zoning authority, and most communities have some type of site plan review procedure. Site plan review is a vital component of the planning process because it creates a mechanism for reviewing development plans for projects that are likely to have a noticeable impact on the surrounding land uses, natural resources and traffic. Site plan review also provides a mechanism for placing reasonable conditions on projects prior to the issuance of a building permit. However, it does not create authority to disapprove uses permitted by right. Unlike a subdivision plan or special permit, an approved site plan does not “grandfather” any zoning rights. Site plan approval lapses after two years from the approval date, if substantial use has not commenced, except for good cause.

Originally adopted in 1975, Chelmsford requires site plan review for the building, alteration, or expansion of any nonresidential building, structure or use in all zoning districts. This is required if such construction will exceed a total gross floor area of 500 square feet. In Chelmsford, Site Plan Review under Section 195-104 of the Zoning By-law applies to the following:

- Construction, exterior alteration or exterior expansion of, or change of use within, a municipal, institutional, commercial, industrial or multi-family structure involving more than 500 square feet;
- Construction or expansion of a parking lot/area for a municipal, institutional, commercial, industrial or multi-family structure or purpose (construction or expansion from 500 to 2,500 sq. ft. shall require minor site plan review);
- Grading or clearing more than 10% of a lot, except for the following: landscaping on a lot with an existing structure or a proposed single-or two-family dwelling; and
- Construction or exterior expansion of a single- or two-family structure that will result in habitable space of more than 4,000 sq. ft. on a lot which held a single- or two-family structure within the past two years.

- Establishment of any commercial or industrial use that is not located principally within a permanent structure, regardless of size, and which is operated for a duration greater than eight consecutive weeks.

Chelmsford does not require site plan review for a building that was wholly or partially destroyed and the rebuilt using the same footprint or the square footage of usable space.

Landscaping

Landscaping plans are an important component of the overall development plan and are required by most communities as part of the Site Plan Review process. Adopted in 1998, the Chelmsford Zoning Bylaw requires a landscaping plan for all non-residential and multi-family projects. However, landscaping requirements may be reduced through a special permit, if the Planning Board finds that the proposed project will not detract from the objectives set forth in Section 195-41 of the Zoning Bylaw.

Parking areas with more than ten (10) spaces must contain 150 square feet of planted area for every 1,000 square feet of pavement related to parking spaces and aisles. The screening of parking areas facing public ways and residential zones or uses is required. Each nonresidential development facing a residential use or district is required to meet the required buffer area setbacks. Plant species shall be appropriate to proposed use, siting, soils and other environmental conditions. As part of the Site Plan approval process, the Planning Board may require the applicant to submit a landscaping plan.

Off-Street Parking and Loading

Zoning bylaws normally set minimum off-street parking and loading standards for various land uses. Adopted in 1975, Chelmsford's minimum parking requirements for businesses uses are expressed as a minimum number of spaces per square foot of office or retail space, while residential and transient uses are expressed as a minimum number of spaces per bedroom or room/unit. The Planning Board has the discretion to reduce the number of parking spaces required if the project proponent can document that fewer spaces will meet the parking needs of the proposed project.

Chelmsford's off-street parking and loading regulations also impose design, landscaping and lighting requirements, in addition to minimum dimensions for parking spaces. Notably, unlike some communities, Chelmsford requires that any reduction in area required for parking is reserved as landscaped open space.

Signage and Outdoor Lighting

Signage and outdoor lighting is usually the most restrictive and exhaustive section of a zoning bylaw, given the need to accommodate and provide uniformity for each zoning district.

Chelmsford requires a sign permit for the erection, enlargement or alteration of any sign.

Signage must be maintained in a safe and sanitary condition to the satisfaction of the Inspector of Buildings, and in accordance with Section 1404.0 and 1405.0 of the State Building Code. The Inspector of Buildings is responsible for the issuance, approval and denial of all sign permit applications.

Chelmsford is similar to many other communities regarding the types of signage and illumination which are prohibited. However, it is extremely difficult for a code enforcement officer or the Inspector of Buildings to monitor all signage in Town. Chelmsford has strict standards for signs placed in the residential, commercial and industrial districts, with regard to lettering, illumination, height, square footage, setbacks and maintenance. Signs permitted in the business districts are also permitted in the two industrial districts, with the exception of window signs. Outdoor lighting is required to be designed, located, installed, and directed in a fashion that prevents observable shadows at the property line or glare at any location on or off the property.

PUBLIC INPUT

The Master Committee developed a written survey for the 2020 Master Plan that was completed by over 1,000 residents. Below is a summary of input received that is germane to land use and zoning:

- Approximately 50% of respondents indicated that restricting or prohibiting business/commercial development is moderately to extremely important, while 25.5% indicated that it is not important;
- 74% of respondents felt that encouraging more intense economic development in strategic locations is moderately to extremely important;
- 85.% indicated that creating additional opportunities for small scale/neighborhood-style business establishments is moderately to extremely important; and
- 78.7% of respondents in that creating design guidelines for new development is moderately to extremely important.

ISSUES AND OPPORTUNITIES

Most of the land use recommendations outlined within the 2010 Master Plan have been implemented over the course of the decade, and most of those that remain incomplete are still valid and worthy of future consideration. While the 2013 design guidelines were adopted, an advisory review process, as outlined in 2010, has not been established. As noted above, a large majority of survey respondents favored the creation of design guidelines for new development. The Planning Board should investigate whether more improvements to the design review process are warranted for commercial/industrial and multi-family development.

The 2010 Master Plan recommended that the zoning bylaw be modified to enhance and reflect the existing character of its neighborhoods. It suggested that particular attention be paid to the zoning requirements for the Westlands, and the neighborhoods around Heart Pond and Freeman Lake, where development has occurred at a much higher density than in other areas of town. The 2019 Fall Town Meeting revised Section 195-8: Pre-existing Non-conforming 1- and 2-family Structures, to create zoning setbacks based upon the date that the structure was built. This change has significantly reduced the number of special permits needed for 1- and 2-family additions. The Planning Board felt that this approach was faster and easier than a zoning map revision. In late 2021, the Planning Board should review the impact of the Section 195-8 revision to determine whether it has adequately addressed town-wide development issues or if zoning revisions are still needed.

A Mill Reuse Overlay District and Bylaw for the mill complexes in North Chelmsford was recommended on the 2010 Master Plan in order to provide greater flexibility for the reuse or redevelopment of existing structures, and to protect historic resources and further the town's economic development and housing goals. While the CEIOD provides this opportunity for the portion of the mill properties that lie within the commercial zone, it does not apply to the mill that is located in the industrial zone. The Town should contact the mill properties owners to determine if modifying the CEIOD so that it applies to all mill properties (including those that are industrially zoned) is needed and beneficial. Alternatively, the Town could work with these property owners on establishing a Mill Reuse Overlay District and Bylaw, in order to provide greater flexibility in reusing or redeveloping the existing mill structures.

Overlay zoning is designed to encourage additional uses not addressed in the base zoning. Creation of an overlay district maintains all of the uses allowed in the base zone, but provides greater flexibility in redeveloping or reusing existing structures, and in developing vacant parcels, and increases potential property values for current owners. Overlay zoning bylaws often focus on protecting historic resources or environmental resource areas. The purpose of a mill reuse overlay district is to:

- Protect the neighborhood from the loss of historic buildings, new construction not in character with the neighborhood, or alterations to existing buildings that would lessen their architectural significance;
- Facilitate and encourage the reuse of the North Chelmsford historic mill buildings should a vacancy occur;
- Promote diverse housing choices in the community; and
- Provide flexibility in meeting the town's housing and economic development goals.

Uses other than those allowed under the base zoning would require a Special Permit and Site Plan review, with the Planning Board serving as the Special Permit Granting Authority (SPGA). Design guidelines should be developed for projects undertaken through the overlay bylaw.

The 2010 Master Plan recommended addressing zoning conflicts along the Route 40 corridor between Route 3 and the Westford town line, suggesting that transitional zoning be explored as a means of reducing conflicts between residential and commercial/industrial uses. The Route 40 Study Committee was formed and undertook a significant lengthy and involved process dedicated to this issue which resulted in zoning articles that were defeated at the Fall 2019 Town Meeting. Therefore, this issue remains unresolved. The Planning Board should perform a town-wide analysis of the zoning map and ground conditions in order to eliminate land use conflicts between residential and commercial/industrial uses.

Providing that there is proper community input and adequate traffic mitigation, the 2010 Master Plan supported the extension of commuter rail service from Lowell to Nashua and Manchester, New Hampshire. Should this project go forward, the Town will need to assess whether the feasibility of establishing a commuter rail station within North Chelmsford should be further studied. The addition of commuter rail service would create future opportunities for transit-oriented development. To ensure that the project benefits Chelmsford and its neighboring communities, the Town should continue to monitor the status of the project and work with the New Hampshire Department of Transportation (NHDOT), MassDOT, the Nashua Regional Planning Commission (NRPC), the Lowell Regional Transit Authority (LRTA), and NMOG by participating in the design and environmental review processes. Should a commuter rail station be established, the Town will need to review the zoning in this area in order to take advantage of state funding opportunities for transit-oriented development programs, which promote moderate and high density mixed-use development within walking and bicycling distance of public transit facilities. The Town should also work with the LRTA to maximize transit access, particularly for residents with mobility issues.

As the future of brick and mortar retail and the market for office space become more challenging, the Town should revise its zoning bylaw to accommodate pop-up stores, e-commerce, fulfillment centers and ghost/dark stores. Pop-up retail spaces are temporary and sell various merchandise, including tech gadgets, food, art, seasonal items and fashion. They are

often located in town centers, retail malls, and along busy roadways. The cost of renting space is less expensive than for a traditional store, and the concept is sometimes used to launch a new product, move inventory, test markets, or generate awareness. Typically, merchants may use the space for up to three months.

Electronic commerce or e-commerce is a business model where firms and individuals buy and sell things over the internet. E-commerce companies are increasingly supplementing their network of regional distribution centers with smaller, satellite facilities capable of reducing lead times and providing greater flexibility and service consistency, creating a demand for strategically located warehouse space. These facilities are more about product movement than product storage and have different requirements than traditional warehouses. In many communities, vacant manufacturing facilities and big box retail properties are being converted to distribution centers for e-commerce operations.

Fulfillment centers enable e-commerce merchants to outsource warehousing and shipping. This relieves online business of the necessary physical space to store all products, which is beneficial for merchants without the capacity to directly manage inventory. Sellers send merchandise to the fulfillment center, and the outsourced provider ships it to customers. Fulfillment centers are similar to a warehouse, and often referred to as distribution centers (DC). Like a warehouse, a fulfillment center is a building in which retailers, and similar organizations, store their inventory until distribution to the customer. Unlike a warehouse, however, a fulfillment center is typically operated by a third party logistics vendor (3PL) who provides inventory storage and a host of other operational functions, including freight transportation, handling cross-docking, customer service, and order fulfillment. Generally, inventory does not sit a fulfillment center for more than 30 days.

Among the hardest hit businesses during the pandemic are restaurants and retailers who have been forced to innovate, with many shifting their focus to ghost kitchens and dark stores. Ghost kitchens contain multiple small kitchens leased by a restaurant or restaurant's subcontractor for delivery only, and orders are often delivered by 'third-party aggregators' such as DoorDash, Uber Eats or GrubHub. The term dark store refers to a retail outlet that caters exclusively to online ordering. Located mostly in areas that are preferred for good road connections, the buildings themselves are often utilitarian and nondescript from the outside.

The Town has adopted an Inclusionary Housing Bylaw as recommended in the 2010 Master Plan. Now that the Town has reached its 10% affordable housing goal, it will need to consider whether the affordability requirement should be modified. The affordability requirement should be based on a number that will allow the Town to maintain its 10% goal, taking into consideration any new units that are likely to be added to the town's housing stock through future growth, and keeping in mind any expiring uses (units) that may be on the horizon.

As outlined in the 2010 Master Plan, the Town should encourage Low Impact Development (LID) in its future development regulations. LID is an approach to environmentally-friendly land use development that includes landscaping and design techniques that maintain the natural, pre-developed ability of the land to manage rainfall. This is achieved by applying a suite of tools including the following:

- Preserving the site's natural features such as wetlands, native vegetation, floodplains, woodlands and soils to the greatest extent possible;
- Planting native vegetation in buffer strips and in rain gardens;
- Using vegetated areas to slow runoff, maximizing infiltration and reducing contact with paved surfaces; and
- Reducing impervious surface wherever possible through alternative street design and through the use of shared parking.

A LID Bylaw would also help the Town meet the requirements outlined in EPA's 2016 MS4 Permit now in effect.

In recent years, there has been a growing interest in buying local food that reflects a desire to eat healthier, support the local economy, and sustain the environment. The pandemic has accelerated that movement. Massachusetts is now ranked first in the U.S. for the percentage of farms using "community supported agriculture," or CSA.⁷

The food system is made up of businesses that create jobs, pay for services and supplies, and contribute to the local economy and tax base. A vibrant food system depends upon the ability of these businesses to thrive in a highly competitive marketplace. The *Massachusetts Local Food Action Plan* was developed in 2015 to:

- Increase production, sales, and consumption of Massachusetts-grown foods.
- Create jobs and economic opportunity in food and farming, and improve the wages and skills of food system workers.
- Protect the land and water needed to produce food, maximize environmental benefits from agriculture, and ensure food safety.
- Reduce hunger and food insecurity, increase the availability of healthy food to all residents, and reduce food waste.

According to that Plan, the continuing decline in the state's agricultural land base, especially cropland, threatens the farming sector's future viability. Competition for land, driven by both developers and farmers, is pushing purchase and lease prices up. The lack of affordable land is

⁷ <https://mafoodsystem.org/static/plan/pdfs/MLFSPFull.pdf>

routinely mentioned as one of the biggest challenges to starting and expanding farms. . Food insecurity, a measure of hunger, has doubled in Massachusetts during the pandemic and now affects one in eight residents.

The 2010 Master Plan recommended that the Town amend the zoning bylaw to address the unique needs of agricultural enterprises and operations, in order to encourage the preservation of the town's remaining agricultural lands, and to allow agricultural enterprises to remain economically viable. While the zoning bylaw allows all types of agriculture in all zoning districts, other agriculture-related activities should be considered within the bylaw, such as allowing farm retail sales in residential districts, and allowing farm co-ops, community kitchens, farm-to-table restaurants, and food processing facilities (up to a certain size).

Based upon the continued prevalence of used car lots and the general community sentiment, particularly along Tyngsboro Road, consideration should be given changing this from a by-right use to requiring a special permit.

RECOMMENDATIONS

- 2.1** As recommended in the 2010 Master Plan, the Planning Board should investigate whether additional improvements to the design review process are warranted for commercial/industrial and multi-family development.
- 2.2** In late 2022, review the impact of the Section 195-8 revisions implemented in 2019 to determine whether the revisions adequately addressed town-wide development issues related to pre-existing non-conforming single- and two-family properties, or if zoning revisions continue to be needed.
- 2.3.** Contact mill property owners to determine if modifying the CEIOD so that it applies to all mill properties (including those industrially zoned) would be beneficial. Alternatively, work toward establishing a Mill Reuse Overlay District and Bylaw to provide greater flexibility in reusing or redeveloping the existing structures.
- 2.4** Town Manager/Select Board should appoint a town representative to monitor the Lowell to Nashua/Manchester commuter rail extension project, and position the community to take advantage of transit-oriented development opportunities should the project go forward. The Planning Board should conduct a town-wide analysis of the zoning map and ground conditions in order to eliminate land use conflicts between residential and commercial/industrial uses.
- 2.5** The Planning Board should conduct a town-wide analysis of the zoning map and ground conditions in order to eliminate land use conflicts between residential and commercial/industrial uses.
- 2.6** The Town should revise its zoning bylaw to accommodate pop-up stores, e-commerce, fulfillment centers and ghost kitchens/dark stores to address shifting markets for brick and mortar retail and office space, by allowing these uses by right or by special permit, in a manner that is not detrimental to the neighborhood, as determined by the Planning Board.
- 2.7** Determine whether the affordability requirement within the Inclusionary Housing Bylaw should be modified now that the Town has achieved its 10% subsidized housing inventory goal (SHI).
- 2.8** Amend the development regulations to encourage low impact development (LID) as a means of managing stormwater and assisting the community with compliance with EPA's 2016 MS4 Permit for Massachusetts.
- 2.9** Consider modifying the zoning bylaw and working with the Board of Health to allow and promote agriculture-related activities, such as farm retail sales and artisanal farms in residential districts, farm co-ops, community kitchens, farm-to-table restaurants, and food processing facilities (up to a certain size), as a means of preserving agricultural lands and supporting the agricultural economy.

2.10 The Planning Board should review the goals and objectives of overlay districts and the Inclusionary Zoning Bylaw every two years to determine if updates need to be made.

III. ECONOMIC DEVELOPMENT

INTRODUCTION

The Economic Development section of the updated Chelmsford Master Plan focuses on those elements that energize a community in terms of generating financial support for the municipal services that local residents require. The economic development policies established by the Chelmsford Board of Selectmen and the Chelmsford Economic Development Commission have an impact on the willingness of private investors to invest in the community – whether by expanding local businesses or starting new businesses in the community. An effective economic development strategy provides a balance between economic growth and the quality of life in a community. Economic Development is more than a community’s economic base – it reflects the overall process to attract private investment to provide jobs for community residents, generate property taxes that support local services, creates new contracting opportunities for local businesses and connects the local economy with the regional, state and national economies.

The Economic Development section of the updated Master Plan builds upon the 2010 *Chelmsford Master Plan*. The Town of Chelmsford has moved forward to implement many of the recommendations within this document. The Economic Development Commission has been quite active in working with the Chelmsford business community. Recently the Town completed a business survey with the Northern Middlesex Council of Governments (NMCOG) in an attempt to receive feedback from the business community in order to establish a work plan for the Economic Development Commission to follow. The Town has also moved ahead in streamlining its permitting process by developing an updated Permitting Guide that’s available on the Town’s web page. There has been additional focus on the Route 129 area in terms of modifying the zoning bylaws to

Goal Statement: Revitalize the Chelmsford economy by addressing the COVID-19 impacts through new businesses, resolving the sewer capacity issues, redeveloping aging vacant and for sale properties, utilizing the Economic Development Commission to market the community and attract “growth” businesses which enhance the town’s tax base and create well-paying jobs, in a manner that balances job creation with the quality of life.

- *Address the COVID-19 impact by attracting distribution and fulfillment centers, ghost kitchens, and dark kitchens, while also supporting at home workers.*
- *Develop a Five-Year Plan to address the sewer capacity issue and work with NMCOG and the Greater Lowell communities to increase capacity for the economic future of the region.*
- *Encourage the redevelopment of aging vacant and for sale properties into small-scale neighborhood businesses that achieve higher and better uses.*
- *Utilize the Economic Development Commission to support and expand local businesses and market the Town to expand employment opportunities.*
- *Target economic investment in the following areas: Center Village, the Route 129 Technology Corridor, Drum Hill, Vinal Square, Route 3/ Route 40 Interchange, Route 110/Littleton Road and Chelmsford Street.*

allow supportive services in the area, as well as completing a state-funded marketing study on Route 129 entitled *Chelmsford Cross Roads at Route 129: Repositioning a Suburban Office Park for a New Era*. These initiatives have strengthened the local economy.

There have been many changes in the national economy since the last Master Plan was completed in 2008. At that time, the national economy was recovering from a recession, while we are currently experiencing good economic times. The Town has shown that it can establish its own direction through the targeting of economic growth within the community even though it has limited control over what happens in the Greater Lowell, state or national economies. The Town needs to continue to focus on the many redevelopment opportunities available in the community. The Economic Development Commission has demonstrated that it makes sense to work directly with private businesses and to provide the support they need to expand and prosper. With the awarding of an EDA planning grant to NMCOG, it would make sense for the Town to actively participate in the development of the new Five-Year Comprehensive Economic Development Strategy (CEDS). The CEDS document is designed to establish a regional “blueprint” for economic growth in the Greater Lowell region that ties together economic development, workforce development, housing and transportation in a comprehensive fashion.

CHARACTERISTICS OF THE WORKFORCE

Over the past twenty years, the workforce in Chelmsford has become more highly educated and is now employed in higher paying, knowledge-based industries. This section examines trends and changes in the types of industries in which the Chelmsford workforce is employed, the wages they are earning, and trends in employment over the past decade. It also examines layoffs in the region which have affected the local workforce.

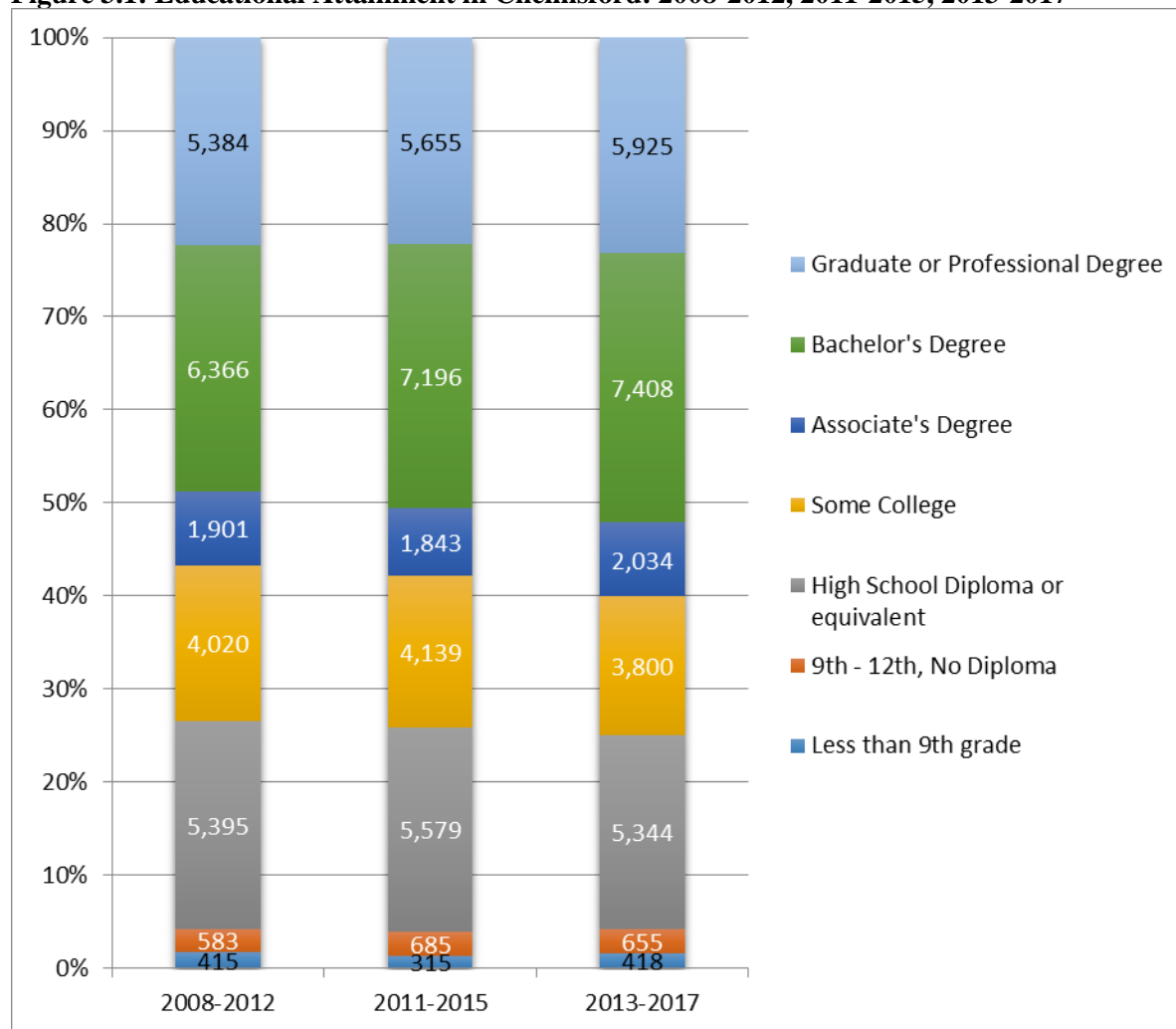
Educational Attainment

Figure 3.1 on the following page compares educational attainment among Chelmsford residents 25 years and older between 2008-2012, 2011-2015 and 2013-2017. In 2008-2012, 4.1% (998) of adults living in Chelmsford had not earned a high school diploma or its equivalent. In 2011-2015, that rate had decreased to 3.9% (1,000) and by 2013-2017, it had increased to 4.2% (1,073). Adults who had earned at least a high school diploma accounted for 22.4% in 2008-2012, 22% in 2011-2015, and 20.9% in 2013-2017.

For all three time periods, the majority of adults had completed some college. In 2008-2012, Associate’s Degree holders comprised 7.9% (1,901) of adults, while those with Bachelor’s and Advanced Degrees accounted for 26.5% (6,366) and 22.4% (5,384) respectively. In 2013-2017, approximately 8% (2,034) of all adults over the age of 25 had earned an Associate’s Degree, 29% (7,408) of all adults had earned a Bachelor’s Degree, and 23.2% (5,925) of all adults had earned an Advanced or Professional Degree. In essence, the changes in the types of positions

workers are employed in—which is to say, higher skilled, more training intensive, and better paying jobs-- is consistent with the changes in both educational attainment and the distribution of incomes among residents that was addressed in the Introductory chapter of this Master Plan.

Figure 3.1: Educational Attainment in Chelmsford: 2008-2012, 2011-2015, 2013-2017



Source: 2008-20012, 2011-2015 and 2013-2017 American Community Survey

Employment Sectors for Chelmsford Residents

Chelmsford residents work in virtually every industry, from skilled labor fields such as biotechnology, engineering, manufacturing and construction, to food services and retail, business, law, and public administration. Table 3.1 on the next page shows the primary occupations by industry for Chelmsford residents in 2010 and 2013-2017.

This table shows the increased employment opportunities for Chelmsford residents. Between 2010 and 2013-2017, employment opportunities in all industries increased by 9.4%. During this period of time, workers employed in the education, health care, and social services fields have

made up the largest portion of working Chelmsford residents, employing 4,447 residents in 2010 and 4,457 residents in 2013-2017. Manufacturing, which employed 2,496 Chelmsford residents in 2010 (the fourth largest industry employing residents) increased by 17.6% between 2010 and 2013-2017. The other industries that experienced growth included Agriculture, Forestry, Fishing and Hunting (90%); Construction (26.1%); Finance, Insurance and Real Estate (19.9%), Professional, Scientific, Management, and Administrative and Waste Services (15.7%); Arts, Entertainment, Recreation, Accommodation and Food Services (48%); Other services, except Public Administration (9.5%) and Public Administration (64.1%).

Table 3.1: Primary Employment Industries For Chelmsford Residents – 2010 and 2013-2017

Industry	2010	2013-2017	Percent Change, 2010-2013/2017
Agriculture, Forestry, Fishing and Hunting, and Mining	10	19	90.0
Construction	802	1,011	26.1
Manufacturing	2,496	2,936	17.6
Wholesale Trade	440	380	-13.6
Retail Trade	1,562	1,528	-2.2
Transportation, Warehousing, and Utilities	614	493	-19.7
Information	850	620	-27.1
Finance, Insurance, and Real Estate (Including leasing)	1,041	1,248	19.9
Professional, Scientific, Management, and Administrative and Waste Services	2,996	3,466	15.7
Educational Services, Health Care, and Social Assistance	4,447	4,457	0.2
Arts, Entertainment, Recreation, Accommodation, and Food services	717	1,061	48.0
Other services, except Public Administration	619	678	9.5
Public Administration	457	750	64.1
Total – All Industries	17,051	18,647	9.4

Source: 2010 US Census, 2013-2017 American Community Survey

Journey to Work and Commuting Patterns

In addition to understanding the industries in which Chelmsford residents are employed, it is important to know where residents work and how that has changed over the last few years.

Table 3.2 on the next page compares where Chelmsford residents worked in 2010 and 2013-2017, while this table shows the mode of travel utilized by Chelmsford residents to get to work, Figure 3.2 breaks out the amount of time it typically takes for Chelmsford residents to arrive at work.

Table 3.2: Journey to Work Data for Chelmsford Residents – 2006-2010 and 2013-2017

Place of Employment	No. of Workers 2006-2010	No. of Workers 2013-2017	Percent Change , 2006-2010 to 2013/2017
Massachusetts	15,572	17,248	10.8
Middlesex County	12,887	14,576	13.1
Outside of Middlesex County	2,685	2,672	-0.5
Outside of Massachusetts	582	966	66.0

Source: 2006-2010 and 2013-2017 American Community Survey

According to Table 3.2 above, the greatest percentage of Chelmsford residents worked in Massachusetts in 2006-2010 (96.4%) and in 2013-2017 (94.7%). Middlesex County was the principal location for those working in Massachusetts with 82.8% in 2006-2010 and 84.5% in 2010-2017. Workers outside Massachusetts were principally in New Hampshire or, to a lesser extent in Maine. According to the 2011-2015 American Community Survey, 19.5% of Chelmsford residents in the work force worked in Chelmsford. The principal places of employment outside Chelmsford were Lowell (9.3%) and Boston (5.7%).

Using a methodology developed by the U.S. Census Bureau, Chelmsford's daytime population can be calculated. The daytime population is calculated by adding the total resident population to the number of workers in town and then reducing this number by the number of residents working in town. With an estimated population of 35,313 residents in 2018 and a local employment number of 18,214, that total is 53,527. If you assume that 50% of the residents work in town (based on previous estimates), that number would be reduced by 9,107 or 44,420, which would be the daytime population figure. In other words, Chelmsford's daytime population is 9,107 people greater than its total resident population.

As outlined in Table 3.3 below, the majority of workers drove alone to work in 2006-2010 (85.8%) and in 2013-2017 (83.3%). The next largest mode category was carpools at 6% in 2006-2010 and 6.1% in 2013-2017. Combining Walked and Worked at home, the estimated number of residents definitely working in Chelmsford was 836 in 2006-2010 and 1,239 in 2013-2017.

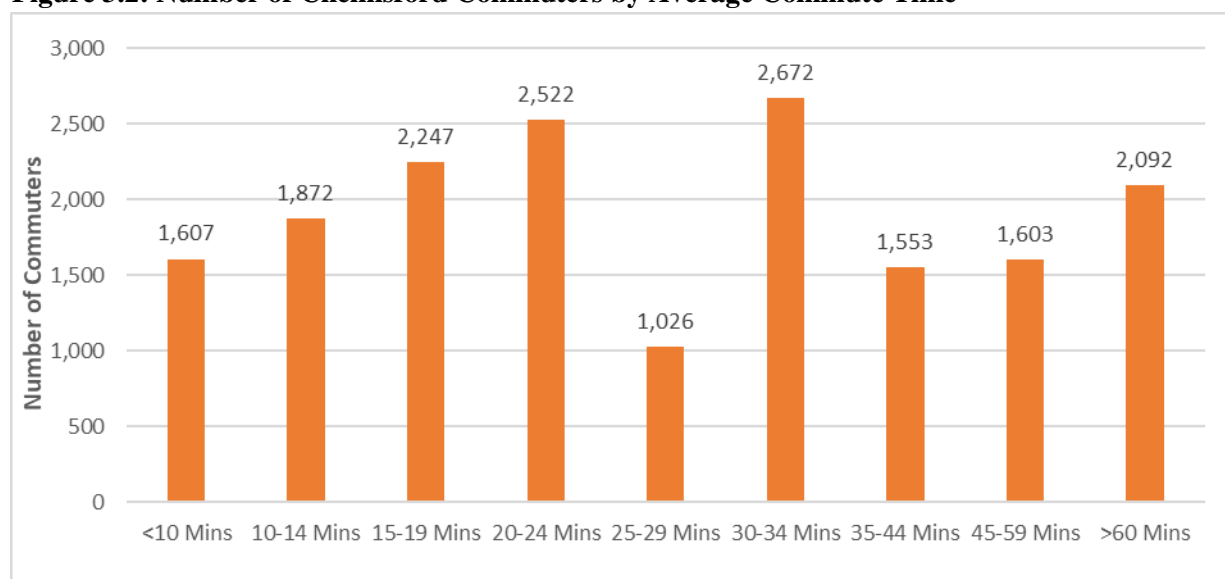
Table 3.3: Journey to Work by Mode of Travel

Mode	2006-2010	2013-2017
Drive Alone	14,337	15,172
Carpool	1,003	1,111
Public Transportation (excluding taxicab)	384	546
Walked	117	219
Bicycle	17	36
Taxicab, motorcycle or other means	134	109
Worked at home	719	1,020

Source: U.S. Census Bureau, 2006-2010 and 2013-2017 American Community Survey

Regardless of mode of transportation, approximately one-third (33.3%) of residents had a commute time of less than twenty minutes; another 45.2% had commutes between twenty and forty-five minutes, and 21.5% of residents commuted for more than forty-five minutes, as shown in Figure 3.2 on the following page.

Figure 3.2: Number of Chelmsford Commuters by Average Commute Time



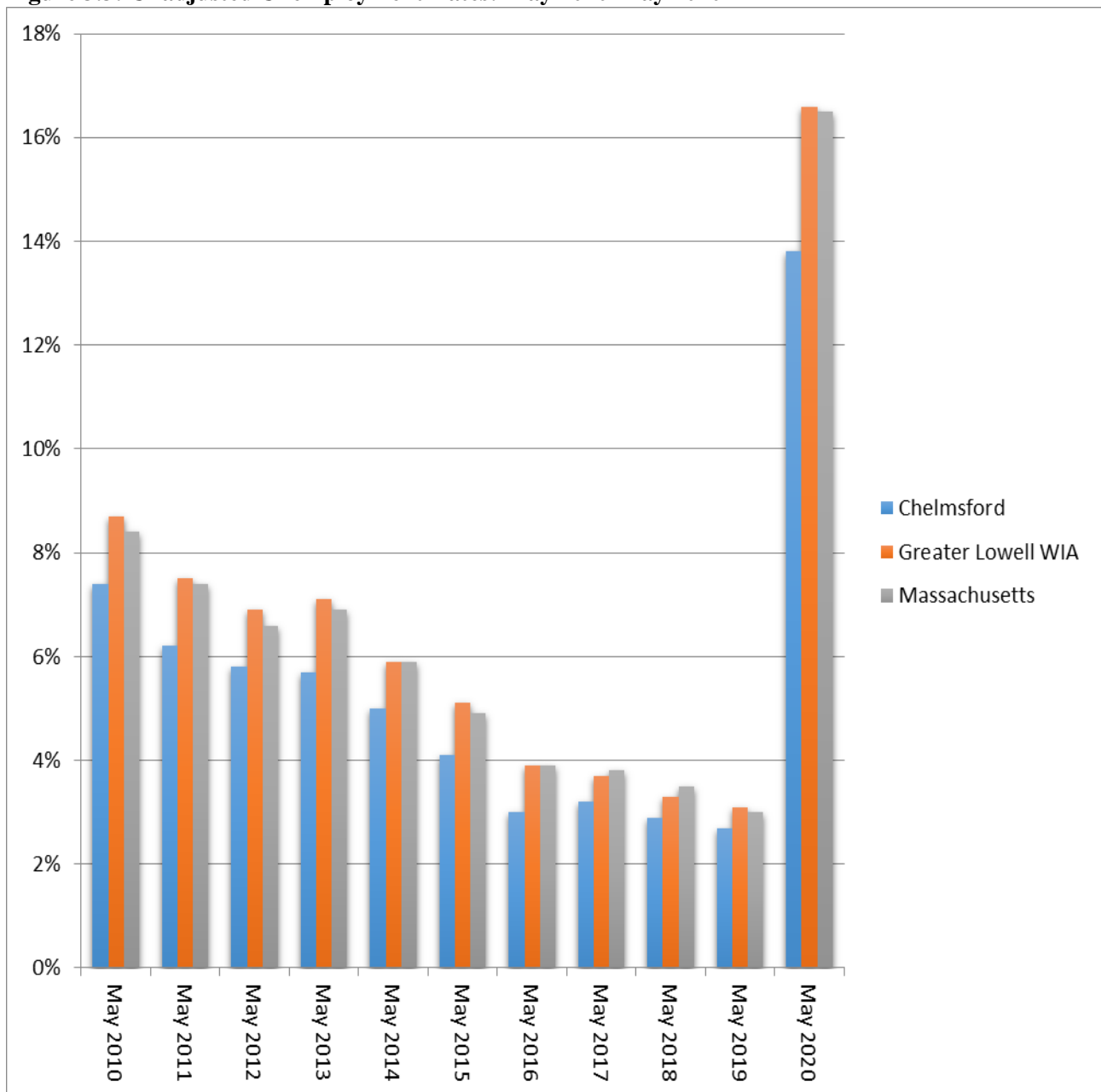
Source: U.S. Census, 2013-2017 American Community Survey

Employment Levels and Unemployment

The unemployment rates in Chelmsford between May 2010 and May 2020 have consistently been lower than the unemployment rates for the Greater Lowell Workforce Development Area (WDA) and the Commonwealth of Massachusetts. In May 2010 Chelmsford had an unemployment rate of 7.4%, as compared to the Greater Lowell WDA at 8.7% and the Commonwealth of Massachusetts at 8.2%. However, due to COVID 19, the unemployment rates in May 2020 skyrocketed to 13.8% in Chelmsford, 16.6% in the Greater Lowell WDA and 16.5% in the Commonwealth.

These higher unemployment rates are reflective of the decreased participation in the workforce by Chelmsford residents and those of the Greater Lowell region and Commonwealth. In May 2010 Chelmsford had a labor force of 18,109 workers with 16,767 employed. By May 2020, the labor force had decreased to 17,899 workers with 15,424 employed. While the Greater Lowell WDA's labor force increased from 145,839 workers in May 2010 to 150,073 in May 2020, its employment levels decreased from 133,084 in May 2010 to 125,154 in May 2020. At the state level, the labor force decreased from 5,230,400 workers in May 2010 to 2,942,400 workers in May 2020, while the number employed decreased from 3,486,100 (May 2010) to 2,942,400 (May 2020). Outlined on the next page in Figure 3.3 are the unemployment rates for Chelmsford, the Greater Lowell WDA and the State from May 2010 to May 2020.

Figure 3.3: Unadjusted Unemployment Rates: May 2010-May 2020



Source: Executive Office of Labor and Workforce Development LURR Reports

Given that the majority of the Chelmsford residents work in the region, we can expect that this decrease in employment is due to the temporary or permanent closing of businesses in the area. The layoffs for the region from June 2013 to June 2020 are provided on the next page in Table 3.4. The state's Rapid Response Team is responsible for maintaining this data.

Table 3.4: Layoffs in the Greater Lowell Region: June 2013 – June 2019

Community	Company	Effective Date	Employees Affected
Chelmsford	Merrimack Education Center	6/30/2015	80
	ESI, Inc.	10/1/2015	42
	Harris Corporation	8/01/2016	92
	Dionex Thermo Fisher	8/31/2016	24
	Chadwick-BaRoss Inc.	4/21/2020	5
Billerica	Entegris, Inc.	6/30/2013	18
	Atlantic Express/Groom Tr.	12/31/2013	106
	Northeast Reliable Service	7/30/2015	90
	Benu Networks	9/30/2016	17
	Bruker Daltonics	12/31/2016	48
	America's Auto Auction Billerica, Inc.	3/17/2020	201
Dracut	Layne Christensen Co.	3/1/2017	5
Lowell	Ericsson Communications	8/31/2013	70
	Microsemi Corporation	2/14/2014	5
	Segue Manufacturing Service	3/17/2014	2
	Glenwood Center	4/3/2014	60
	DOTS	5/31/2014	10
	Microsemi Corporation	10/31/14	4
	La Boniche	12/20/2014	10
	JP Morgan Chase & Co.	12/31/2014	70
	A. H. Notini & Sons, Inc.	8/21/2015	90
	Cobham Sensor Systems	10/31/2015	175
	Horn Home for the Aged	11/08/2015	12
	Merrimack River Valley Ho	11/20/2015	32
	Autoliv ASP, Inc.	12/31/2015	90
	Bishop's Legacy Restaurant	12/22/2016	10
	Dollar Express (Family Dollar)	6/2/2017	10
	OS Restaurant Services, LLC (includes Tyngsborough, Peabody and Methuen)	3/15/2020	266
Tewksbury	KMart	7/31/2016	20
	Altistar Networks, Inc.	4/13/2017	24
Westford	Payless Shoe Source	4/28/2017	5

Source: Massachusetts Rapid Response Team

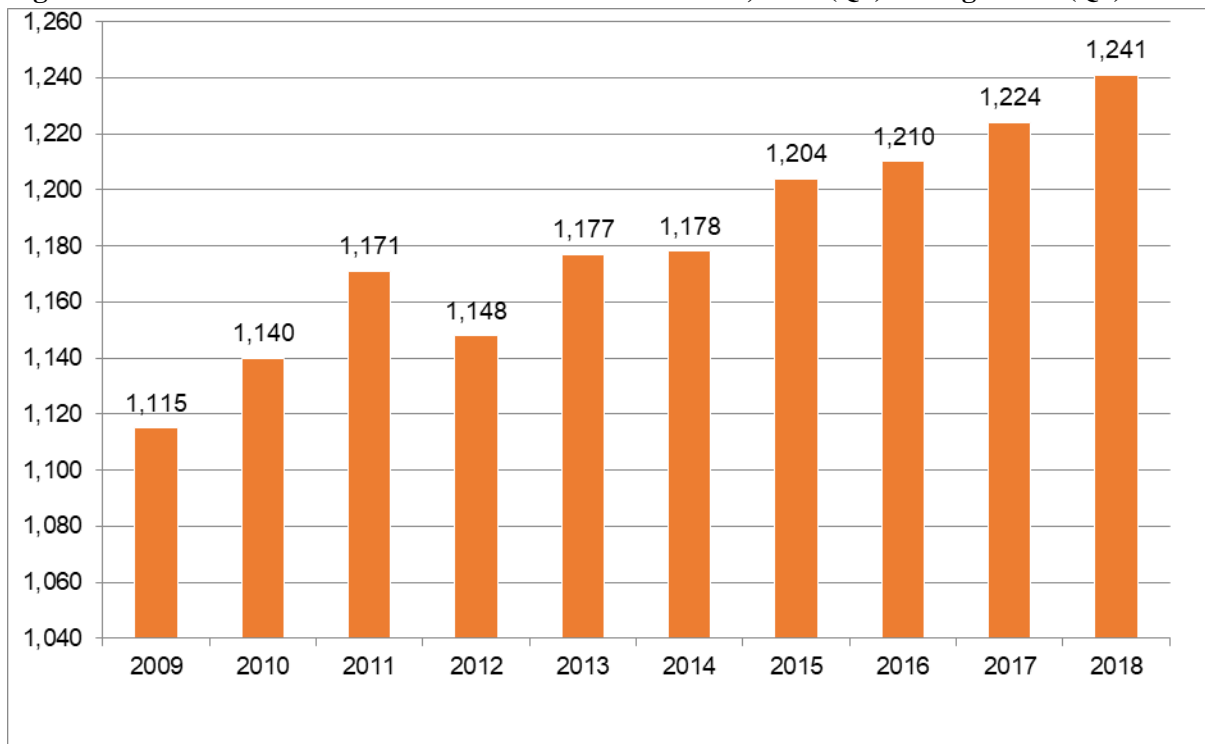
EXISTING ECONOMIC AND BUSINESS CONDITIONS

This section examines the existing economic and business conditions in Town over the past ten years. It begins by analyzing business patterns, including changes in the number of establishments, average monthly employment, and wages. An examination of changes in the industry composition in Town is then provided, followed by a discussion of the major employers in Chelmsford.

Business Patterns

Trends in the Chelmsford workforce are mirrored by the business patterns of establishments operating in Town over the past decade. Figure 3.4 shows the changes in the number of Chelmsford establishments between the third quarter of 2009 and the third quarter of 2018. The number of Chelmsford establishments has steadily increased from 1,115 establishments in 2009 (Q3) to 1,241 establishments in 2018 (Q3). There was a decrease in the number of establishments between 2011 and 2012, as well as a leveling off between 2013 and 2014.

Figure 3.4: Total Number of Establishments in Chelmsford, 2009 (Q3) through 2018 (Q3)

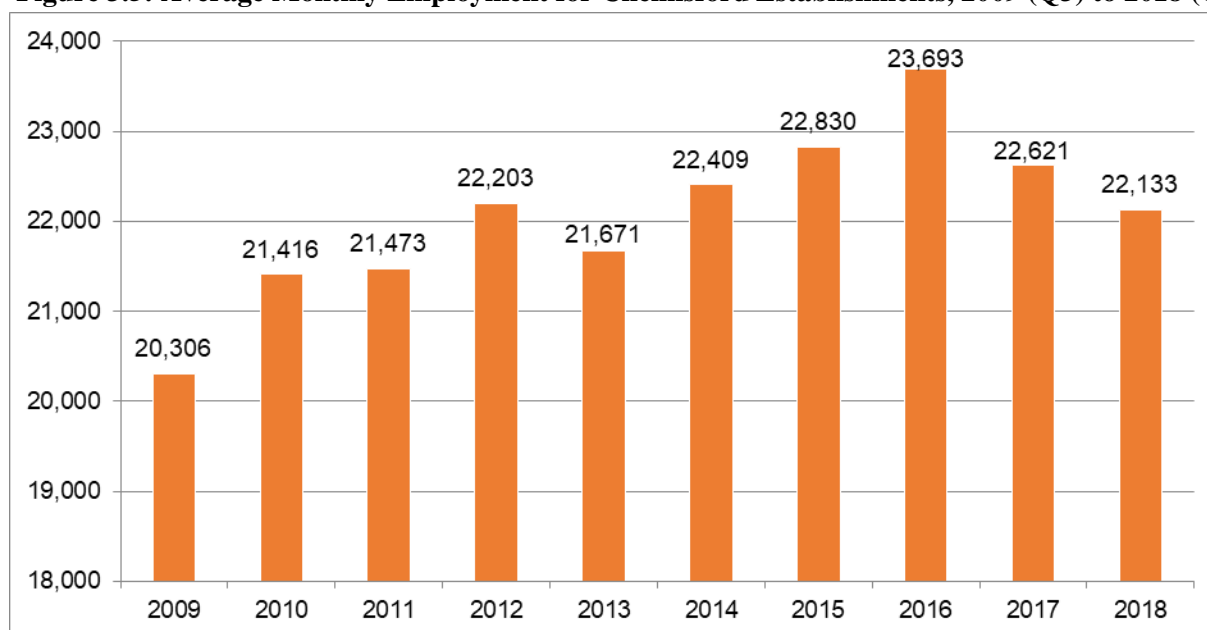


Source: Executive Office of Labor and Workforce Development ES-202 Reports

Similar to what was shown in the unemployment data, Figure 3.5 on the next page reflects the average monthly employment for Chelmsford businesses between 2009 (Q3) and 2018 (Q3). Average monthly employment increased from 20,306 in 2009 (Q3) to a peak employment level

of 23,693 in 2016 (Q3). The average monthly employment levels decreased by 6.6% to 22,133 employees in 2018 (Q3)

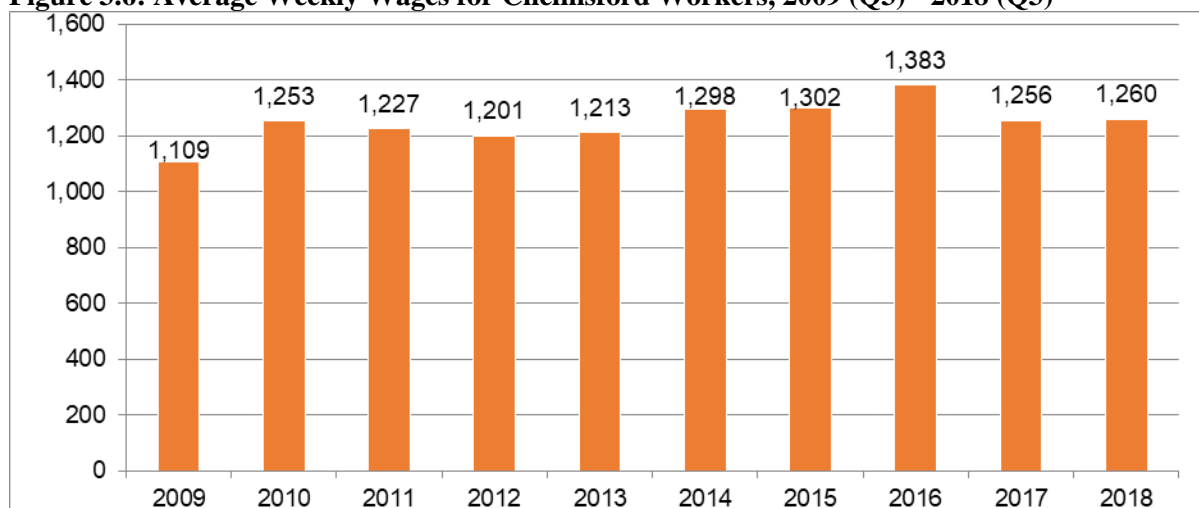
Figure 3.5: Average Monthly Employment for Chelmsford Establishments, 2009 (Q3) to 2018 (Q3)



Source: Executive Office of Labor and Workforce Development ES-202 Reports

Another indicator of local economic vitality is the average weekly wage paid to workers. Figure 3.6 reflects the changes in average weekly wages (across all industries) paid to workers employed in Chelmsford for the third quarter of each year between 2009 and 2018. The average weekly wages increased from \$1,109 in 2009 (Q3) to the peak of \$1,383 in 2016 (Q3). Average weekly wages have decreased by 8.2% to \$1,260 in 2018 (Q3).

Figure 3.6: Average Weekly Wages for Chelmsford Workers, 2009 (Q3) - 2018 (Q3)



Source: Executive Office of Labor and Workforce Development ES-202 Reports

Industry Composition

The composition of industries in Chelmsford ranges from high tech research and development firms to social services; restaurants to utility contractors. Less people are employed in manufacturing now than twenty years ago, but employment in construction, finance, and information technology has increased. Table 3.5 below which reflects the changes in industry composition between 2009 (Q3) and 2018 (Q3),

The number of industries in Chelmsford actually increased by 11.3% during this time period. In terms of the goods-producing domain, the number of establishments decreased by 3.2%. Construction industries actually increased by three firms, or 2.4%, but the manufacturing industries decreased by six firms, or 10%. Both the durable (-11.4%) and nondurable manufacturing goods (-6.3%) industries decreased.

Table 3.5: Changes in Local Industry Composition: 2009 (Q3) to 2018 (Q3)

Number of Establishments	2009 (Q3)	2018 (Q3)	Percent Change: 2009 (Q3)-2018 (Q3)
Total, All Industries	1,115	1,241	11.3
Goods-Producing Domain	190	184	-3.2
Natural Resources and Mining	6	3	-50.0
Agriculture, Forestry, Fishing & Hunting	4	0	NA
Construction	124	127	2.4
Manufacturing	60	54	-10.0
Durable Goods Manufacturing	44	39	-11.4
Non-Durable Goods Manufacturing	16	15	-6.3
Service-Providing Domain	925	1,057	14.3
Trade, Transportation and Utilities	197	183	7.1
Utilities	4	4	0.0
Wholesale Trade	69	57	-17.4
Retail Trade	106	100	-5.7
Information	25	27	4.0
Financial Activities	82	83	1.2
Finance and Insurance	44	46	4.5
Real Estate and Rental and Leasing	38	37	-2.6
Professional and Business Services	235	263	11.9
Professional and Technical Services	162	180	11.1
Management of Companies and Enterprises	7	5	-28.6
Administrative and Waste Services	66	78	18.2
Education and Health Services	142	272	91.5
Educational Services	20	22	10.0
Health Care and Social Assistance	122	250	104.9
Leisure and Hospitality	83	91	9.6
Arts, Entertainment, and Recreation	12	14	16.7
Accommodation and Food Services	71	77	8.5
Other Services, except Public Administration	137	112	-18.2
Public Administration	24	26	8.3

Source: Executive Office of Labor and Workforce Development ES-202 Reports (2009 Q3 and 2018 Q3))

Many of the service-providing industries, such as educational services (10%), financial and insurance businesses (4.5%), health care services (104.9%), accommodation and food services (8.5%), and Education and Health Care Services (91.5%) increased substantially between the third quarters of 2009 and 2018. Service industries experiencing decline during this time frame included wholesale trade establishments, which declined by -17.4% between 2009 and 2018, as well as Real Estate and Leasing (-2.6%), and Retail Trade (-5.7%). These trends are consistent with larger issues related to the emergence of a service-oriented economy in the 21st century, a trend which has been impacting the region, state, and nation as a whole for the past twenty years.

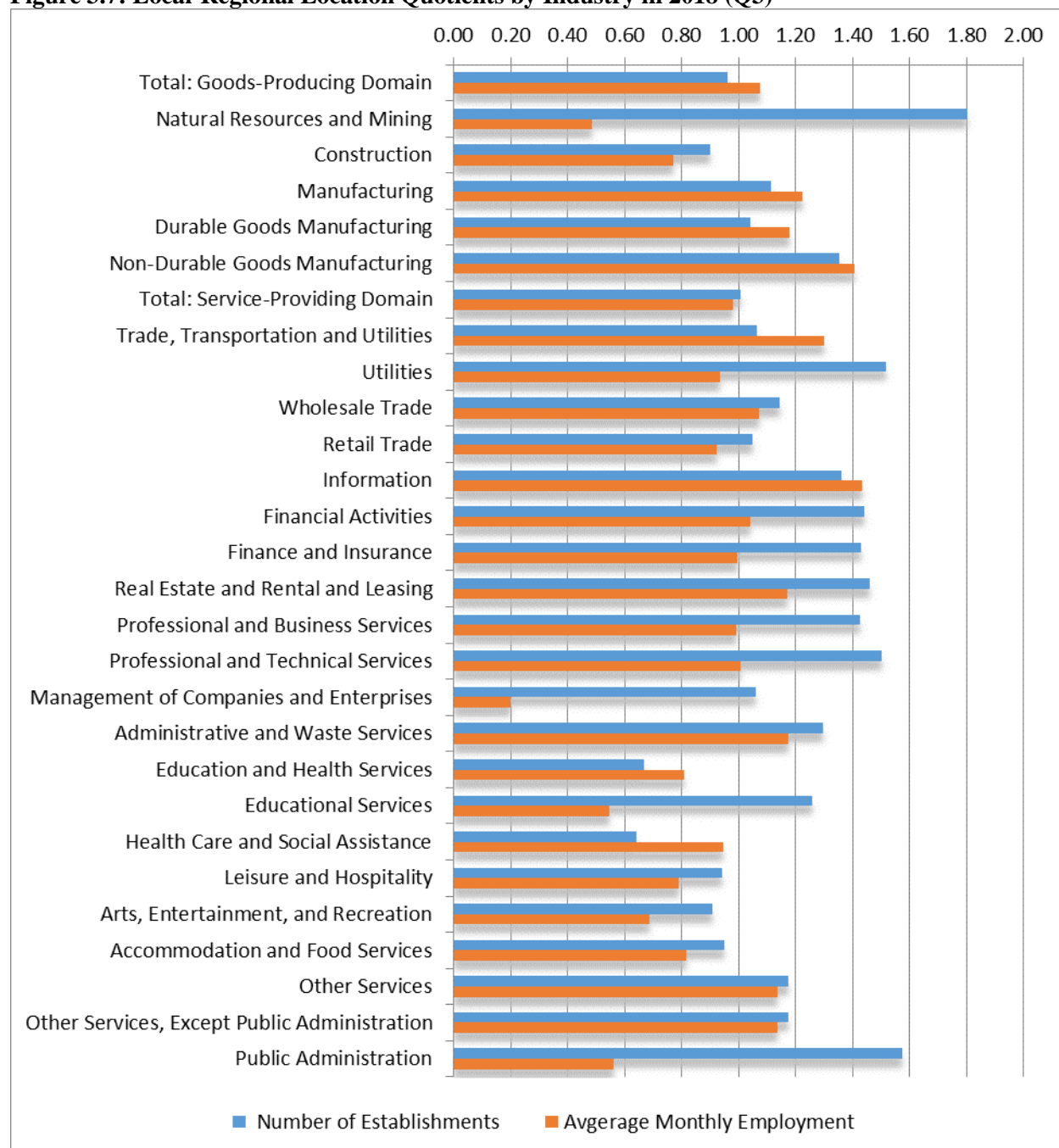
Location quotients (LQ) are a useful tool for assessing the various industry clusters located in a particular region. Location quotient analyses help us better understand the strengths of a local economy by assessing which industries are concentrated within it, relative to the region or state as a whole. Location quotients-- which are essentially a ratio of the concentration of a particular industry in one area (in this case, Chelmsford) to the concentration of the same industry in a larger geographic area (Greater Lowell Workforce Investment Area⁸) - are understood to be significant when they are greater than 1.0.

Using the Greater Lowell Workforce Investment Area as a basis of comparison, location quotients were developed with third quarter 2018 data for each of the industries with a presence in Chelmsford. Quotients were calculated for both the total number of establishments and average monthly employment among each industry sector. Figure 3.7 on the next page illustrates the current location quotients for each of the primary industry sectors operating in town, according to both the total number of establishments and average monthly employment.

According to the 2018 (Q3) figures, the industry with the highest location quotient for number of establishments was Natural Resources and Mining, which is somewhat misleading. With only twelve (12) establishments and average monthly employment of 239 workers in the Lowell WDA, Chelmsford has 25% of the total establishments in the region. There are other areas in the Goods-Producing Domain that show an LQ greater than 1.0, such as Durable and Non-Durable Manufacturing. The Service-Providing Domain reflects several areas that have an LQ greater than 1.0, such as Trade, Transportation and Utilities, Information, Financial Activities, Professional and Business Services, Administrative and Waste Services, and Public Administration. Overall, Chelmsford has a 0.96 LQ for establishments and a 1.08 LQ for average monthly employment in the Goods-Producing Domain and a 1.01 LQ for establishments and an 0.98 for average monthly employment in the Service-Providing Domain.

⁸ The Greater Lowell Workforce Development Area includes the communities of Billerica, Chelmsford, Dracut, Dunstable, Lowell, Tewksbury, Tyngsborough, and Westford. It is similar to the NMCOG region, except it does not include the Town of Pepperell.

Figure 3.7: Local-Regional Location Quotients by Industry in 2018 (Q3)



Source: Executive Office of Labor and Workforce Development ES-202 Reports (2018 (Q3))

The information contained in Figure 3.7 is further broken down into the Goods-Producing Domain (Table 3.6) and the Service-Providing Domain (Table 3.7). As outlined in Table 3.6 on the next page, Chelmsford enjoys an advantage in the Manufacturing area with LQs of 1.11 for number of establishments and 1.22 in average monthly employment. Within that industrial sector, the highest LQ (1.44) in the number of establishments was in the Food manufacturing sector even though there were only three (3) establishments in Chelmsford, as compared to

fifteen (15) establishments in the Lowell WDA. The highest number of establishments in the Manufacturing industry in Chelmsford was in Durable Goods Manufacturing, which only registered an LQ of 1.04 when compared to the region. However, the LQ for average monthly employment was slightly higher at 1.15. The highest LQ (1.7) for average monthly employment was in the Semiconductor and Electronic Component Manufacturing sector, which had an average monthly employment of 721 workers. The Manufacturing industry with the highest average monthly employment level was the Computer and Electronic Product Manufacturing sector.

Table 3.6: Economic Statistics for Goods-Producing Industries in 2018 (Q3)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	Location Quotient - Number of Establishments	Location Quotient - Avg. Monthly Employment
Natural Resources and Mining	3	21	\$886	1.80	0.49
Construction	127	1098	\$1,444	0.90	0.77
Construction of buildings	28	89	\$1,124	0.91	0.61
Residential building construction	26	67	\$1,059	0.95	0.71
Specialty trade contractors	97	926	\$1,431	0.93	0.82
Building foundation and exterior contractors	11	114	\$2,060	0.72	0.74
Building equipment contractors	50	472	\$1,143	1.03	0.74
Building finishing contractors	21	83	\$1,353	0.97	0.58
Other specialty trade contractors	15	257	\$1,706	0.78	1.37
Manufacturing	54	3893	\$1,685	1.11	1.22
Durable Goods Manufacturing	39	3053	\$1,872	1.04	1.18
Non-Durable Goods Manufacturing	15	840	\$1,005	1.35	1.41
Food manufacturing	3	72	\$604	1.44	1.39
Printing and related support activities	4	147	\$994	1.37	1.43
Fabricated metal product manufacturing	10	209	\$1,335	0.90	0.83
Machine shops and threaded product mfg.	8	164	\$1,268	1.28	1.21
Computer and electronic product manufacturing	18	2107	\$1,988	1.38	1.57
Semiconductor and electronic component mfg.	7	721	\$1,986	1.40	1.72
Electronic instrument manufacturing	7	1246	\$1,948	1.20	1.50
Miscellaneous manufacturing	4	22	\$987	1.03	0.14
Total Goods-Producing Domain	184	5012	\$1,629	0.96	1.08

Source: Executive Office of Labor and Workforce Development ES-202 Reports (2018 Q3)

Chelmsford also has high concentrations of service-related businesses and jobs relative to the region. In terms of the total number of establishments, every major service industry category except for Education and Health Services and Leisure and Hospitality had a significant (>1.0) location quotient. Table 3.7 on the next page and on the subsequent three pages illustrates that those industries with the most significant presence are among high-tech, professional, knowledge-based services.

Within the Trade, Transportation and Utilities industry, the LQs for Utilities (1.52), Wholesale Trade (1.15) and Retail Trade were greater than 1.0 in terms of total establishments. The Information industry had an LQ (1.36) greater than 1.0 for total establishments, which included Publishing industries, except Internet (1.91) and Software publishers (1.72). The Financial Activities industry had an LQ of 1.44 with Finance and Insurance (1.43) and Real Estate Rental and Leasing (1.46) also exceeding 1.0. The Professional and Business Services industry had an LQ of 1.42, which was exceeded by the Professional and Services sector at 1.50. Although the Education and Health Services industry was below 1.0 at 0.67, the Educational Services sector was above 1.0 at 1.26. Other Services had an LQ of 1.18 for total establishments, with a particular focus on Social advocacy organizations (1.55), Personal care services (1.52) and Personal and laundry services (1.48). Public Administration had an LQ of 1.58 for total establishments.

The average monthly employment LQs for service industries were not quite as high, indicating the presence of many small businesses (employing fewer workers) in Chelmsford. In terms of general industry categories, only Information (1.43), Trade, Transportation and Utilities (1.30), Other Services (1.14) and Financial Activities (1.04) had LQs greater than 1.0. Within the larger subcategories only Real Estate and Rental and Leasing (1.17), Wholesale Trade (1.07), Professional and Technical Services (1.01) and Finance and Insurance (1.00) had LQs equal to or greater than 1.0. However, if you look at the subcategories under Professional and Technical Services, there are a number that exceed the LQ of 1.0, such as Office administrative services (2.52), Architectural and engineering services (2.27), Services to buildings and dwellings (1.74), Accounting and bookkeeping services (1.63) and Business support services (1.44).

Table 3.7: Economic Statistics for Service-Providing Industries in 2018 (Q3)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	Location Quotient - Number of Establishments	Location Quotient - Avg. Monthly Employment
Trade, Transportation and Utilities	183	4449	\$1,014	1.06	1.30
Utilities	4	44	\$1,490	1.52	0.93
Water, sewage and other systems	4	44	\$1,490	3.61	1.62
Wholesale Trade	57	795	\$2,097	1.15	1.07
Merchant wholesalers, durable goods	38	684	\$2,099	1.19	1.34
Lumber and const. supply merchant wholesalers	3	38	\$3,052	0.77	0.53
Commercial equip. merchant wholesalers	11	316	\$1,876	1.44	2.38
Appliance and electric goods merchant wholesaler	11	276	\$2,412	1.65	2.72
Hardware and plumbing merchant wholesalers	3	13	\$879	1.44	0.50
Machinery and supply merchant wholesalers	4	26	\$1,295	0.74	0.41
Merchant wholesalers, nondurable goods	10	54	\$2,226	1.60	0.39

Table 3.7 (cont'd): Economic Statistics for Service-Providing Industries in 2018 (Q3)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	Location Quotient - Number of Establishments	Location Quotient - Avg. Monthly Employment
Electronic markets and agents and brokers	9	56	\$1,984	0.78	0.61
Retail Trade	100	1679	\$464	1.05	0.92
Motor vehicle and parts dealers	7	114	\$849	0.57	0.53
Auto parts, accessories, and tire stores	3	40	\$615	0.46	0.47
Building material and garden supply stores	11	64	\$688	1.85	0.52
Building material and supplies dealers	7	30	\$948	1.68	0.29
Lawn and garden equipment and supplies stores	4	33	\$473	2.22	1.70
Food and beverage stores	20	641	\$394	0.86	0.92
Grocery stores	10	593	\$386	0.71	0.93
Beer, wine, and liquor stores	9	45	\$525	1.35	1.21
Health and personal care stores	8	93	\$764	0.77	0.59
Gasoline stations	11	67	\$440	0.96	0.78
Clothing and clothing accessories stores	9	32	\$423	1.86	0.64
Clothing stores	5	18	\$275	1.44	0.40
Sports, hobby, music instrument, book stores	7	61	\$313	1.87	1.68
Sporting goods and musical instrument stores	7	61	\$313	2.20	2.21
General merchandise stores	6	408	\$386	1.31	1.74
Department Stores	5	407	\$385	4.01	2.87
Miscellaneous store retailers	14	167	\$416	1.42	1.87
Florists	3	11	\$304	1.14	0.86
Office supplies, stationery, and gift stores	6	100	\$326	2.55	2.33
Nonstore retailers	5	21	\$750	1.16	0.27
Truck transportation	8	143	\$1,243	0.71	0.66
General freight trucking	4	17	\$711	0.64	0.13
Transit and ground passenger transportation	7	134	\$317	1.10	0.83
Other ground passenger transportation	6	126	\$309	3.33	3.52
Information	27	1016	\$2,600	1.36	1.43
Publishing industries, except Internet	14	470	\$3,578	1.91	1.98
Software publishers	10	450	\$3,662	1.72	3.35
Financial Activities	83	636	\$1,097	1.44	1.04
Finance and Insurance	46	439	\$1,152	1.43	1.00
Credit intermediation and related activities	22	318	\$1,104	1.36	0.97
Depository credit intermediation	16	298	\$1,018	1.27	1.16
Nondepository credit intermediation	5	18	\$2,609	1.72	0.53
Securities, commodity contracts, investments	11	37	\$1,582	2.20	2.05
Securities and commodity contracts brokerage	5	18	\$1,943	4.51	3.98
Other financial investment activities	6	19	\$1,241	1.55	1.40
Insurance carriers and related activities	13	84	\$1,146	1.19	0.88
Insurance agencies and brokerages	13	84	\$1,146	1.22	0.96

Table 3.7 (cont'd): Economic Statistics for Service-Providing Industries in 2018 (Q3)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	Location Quotient - Number of Establishments	Location Quotient - Avg. Monthly Employment
Real Estate and Rental and Leasing	37	198	\$969	1.46	1.17
Real estate	31	104	\$1,038	1.50	1.06
Lessors of real estate	7	17	\$928	1.30	0.50
Offices of real estate agents and brokers	8	41	\$880	1.41	1.75
Activities related to real estate	16	46	\$1,220	1.67	1.12
Rental and leasing services	6	94	\$893	1.35	1.35
Consumer goods rental	3	36	\$987	1.97	2.30
Professional and Business Services	263	3824	\$1,541	1.42	0.99
Professional and Technical Services	180	2435	\$1,968	1.50	1.01
Legal services	37	105	\$1,052	2.14	1.30
Accounting and bookkeeping services	21	162	\$1,646	1.46	1.63
Architectural and engineering services	26	847	\$2,254	1.49	2.27
Specialized design services	3	10	\$1,199	2.16	0.78
Computer systems design and related services	45	464	\$2,094	1.49	0.60
Management and technical consulting services	26	386	\$1,342	1.48	0.96
Scientific research and development services	11	231	\$2,652	1.24	0.42
Other professional and technical services	9	228	\$1,711	0.93	2.10
Management of Companies and Enterprises	5	63	\$3,265	1.06	0.20
Administrative and Waste Services	78	1326	\$676	1.30	1.18
Administrative and support services	73	1257	\$669	1.28	1.18
Office administrative services	4	56	\$1,377	1.80	2.52
Employment services	15	457	\$619	1.64	1.23
Business support services	4	39	\$612	1.25	1.44
Travel arrangement and reservation services	3	4	\$1,088	1.20	0.58
Services to buildings and dwellings	41	635	\$674	1.19	1.74
Waste management and remediation services	5	69	\$795	1.50	1.05
Education and Health Services	272	4333	\$934	0.67	0.81
Educational Services	22	1006	\$703	1.26	0.55
Business, computer and management training	4	36	\$1,312	2.89	3.70
Other schools and instruction	13	80	\$253	1.47	0.96
Health Care and Social Assistance	250	3328	\$1,004	0.64	0.94
Ambulatory health care services	105	1959	\$1,253	2.09	1.68
Offices of physicians	44	1009	\$1,714	3.31	3.41
Offices of dentists	28	252	\$992	1.71	1.38
Offices of other health practitioners	21	228	\$1,037	1.80	1.82
Home health care services	5	293	\$441	1.29	0.83
Nursing and residential care facilities	19	652	\$667	1.24	0.95
Residential mental health facilities	12	143	\$678	1.10	1.06
Continuing care, assisted living facilities	4	228	\$573	2.41	2.08
Social assistance	124	569	\$528	0.38	0.63
Individual and family services	109	372	\$535	0.35	0.59

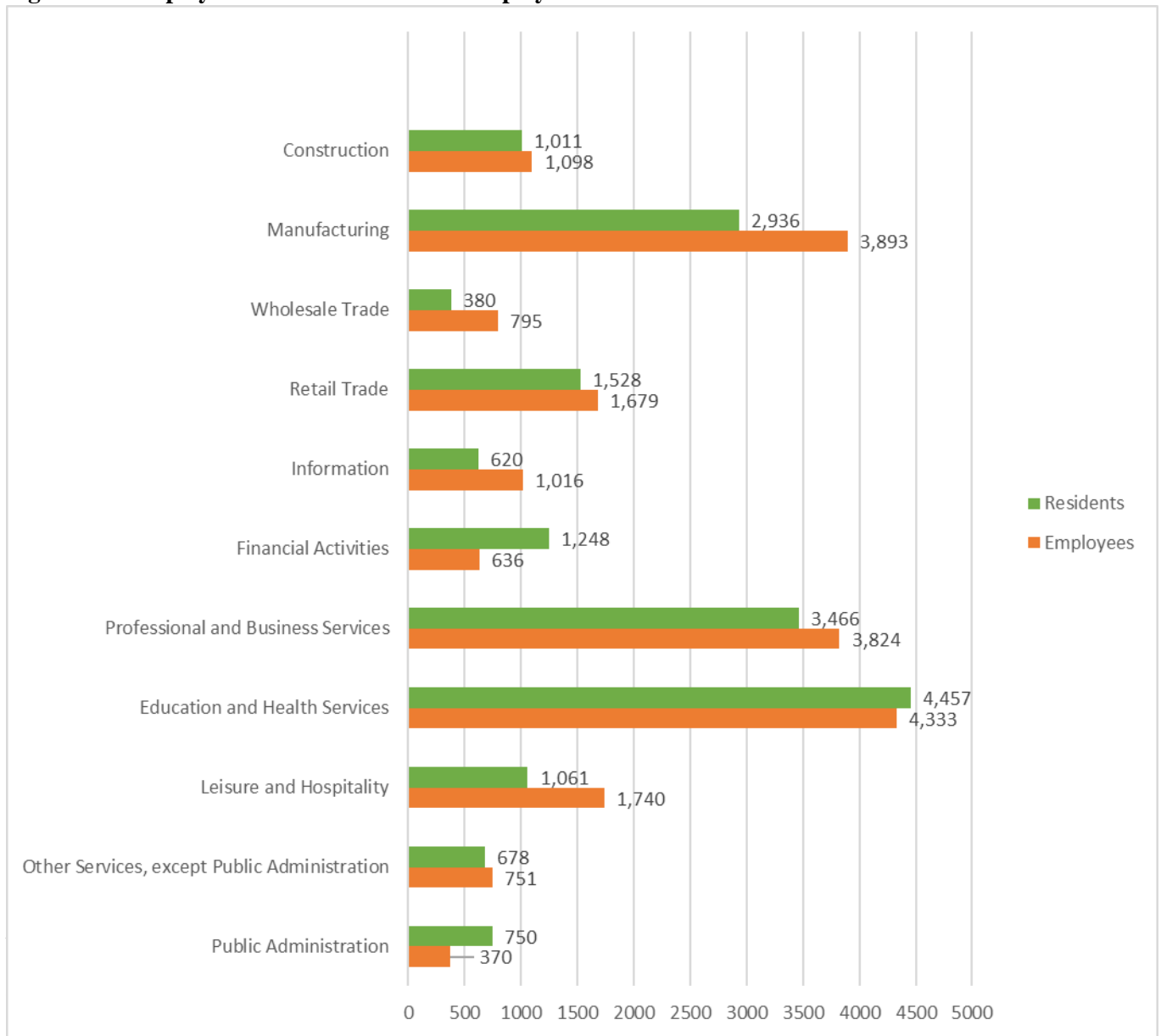
Table 3.7 (cont'd): Economic Statistics for Service-Providing Industries in 2018 (Q3)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	Location Quotient - Number of Establishments	Location Quotient - Avg. Monthly Employment
Child day care services	15	197	\$514	1.42	0.93
Leisure and Hospitality	91	1740	\$364	0.94	0.79
Arts, Entertainment, and Recreation	14	297	\$253	0.91	0.69
Amusements, gambling, and recreation	10	291	\$235	0.88	0.80
Other amusement and recreation industries	10	291	\$235	0.90	0.81
Accommodation and Food Services	77	1443	\$386	0.95	0.82
Accommodation	3	132	\$397	0.98	1.05
Traveler accommodation	3	132	\$397	1.03	1.05
Food services and drinking places	74	1311	\$385	0.95	0.80
Special food services	5	17	\$702	0.61	0.13
Restaurants and other eating places	69	1294	\$381	1.03	0.87
Other Services	112	751	\$926	1.18	1.14
Other Services, Except Public Administration	112	751	\$926	1.18	1.14
Repair and maintenance	28	215	\$1,245	0.85	0.83
Automotive repair and maintenance	21	106	\$1,026	0.82	0.67
Personal and laundry services	55	443	\$842	1.48	1.82
Personal care services	39	205	\$446	1.53	1.41
Death care services	3	21	\$1,086	1.03	1.22
Other personal services	4	13	\$231	1.03	0.53
Membership associations and organizations	13	80	\$556	1.09	0.56
Social advocacy organizations	3	11	\$626	1.55	1.06
Civic and social organizations	3	22	\$339	0.62	0.24
Professional and similar organizations	5	36	\$699	1.29	1.42
Private households	16	14	\$703	1.23	0.99
Public Administration	26	370	\$1,604	1.58	0.56
Total Service-Providing Domain	1057	17121	\$1,151	1.01	0.98

Source: Executive Office of Labor and Workforce Development ES-202 Reports (2018 Q3)

Figure 3.8 on the following page compares the industry sectors for those working in Chelmsford with those of Chelmsford residents.

Figure 3.8: Employment in Chelmsford vs. Employment of Chelmsford Residents in 2018



Source: Executive Office of Labor and Workforce Development ES-202 Reports (2018 Q3)

Chelmsford is home to a number of major regional employers, including United Parcel Service (UPS) and Zoll Medical Group. Table 3.8 on the following page provides a comparison of the eight largest employers in Chelmsford in 2009 and 2019.

Table 3. 8: Major Employers in Chelmsford: 2009 and 2019

Company	Employees	Industry	Company	Employees	Industry
2009			2019		
United Parcel Service	1,550	Local & Long distance freight and delivery	United Parcel Service	2,000	Local & Long Distance Freight and Delivery
Kronos, Inc.	1,251	Computer Hardware and Software	Zoll Medical Group	1,077	Medical Devices
Comcast	714	Telecommunications	Lockheed Martin	900	Global Defense and Security
Natures Jewelry/ Potpourri Group, Inc.	500	Catalog Sales	Waddington North America	700	Disposable Products
Mercury Computer Systems, Inc.	500	Electronic Computers Manufacturing	Comcast Cable	400	Telecommunications
Harvard Vanguard Medical Assoc.	397	Medical Practice	Life Links	324	Non-Profit Human Services
WNA/ Comet Products	335	Consumer Products	Brooks Automation	275	Industrial Technology
Cintas, The Uniform People	300	Uniform Supply Service	HCL America	265	Software & IT Outsourcing

Source: Town of Chelmsford Community Development Department Economic Development Profile

Wages

Table 3.9 on the following page reflects the total wages and average weekly wages earned for all industries operating in Chelmsford during 2009 (Q3) and 2018 (Q3). In sum, the total wages paid across all industries increased by \$69,625,782 (23.8%) between these two quarters, while average weekly wages increased by 16.1% from \$1,084/week in 2009 (Q3) to \$1,258 in 2018 (Q3). Both the Goods-Producing and Service-Providing domains saw increases in their total wages and average weekly wages between 2009 (Q3) and 2018 (Q3).

Although the number of manufacturing businesses in Chelmsford has declined over the years, manufacturing continues to be the leading source for wages among industries operating in the town. Total wages from manufacturing increased by 6.8% between 2009 (Q3) and 2018 (Q3) and average weekly wages increased by 5.6% for the same time period. Average weekly wages for manufacturing jobs still ranks among the highest in all industries with Durable Goods Manufacturing jobs paying average weekly wages of \$1,872. The average weekly wages paid to nondurable goods manufacturing workers increased by 10% from \$914 in 2009 (Q3) to \$1,005 in 2018 (Q3).

Table 3.9: Total Wages and Average Weekly Wages by Industry: 2009 (Q3) and 2018 (Q3)

Industry	Total Wages		Percent Change 2009 (Q3)- 2018 (Q3)	Average Weekly Wages		Percent Change 2009 (Q3)- 2018 (Q3)
	2009 (Q3)	2018 (Q3)		2009 (Q3)	2018 (Q3)	
Goods-Producing Domain	\$89,456,830	\$106,125,501	18.6	\$1,499	\$1,629	8.7
Natural Resources and Mining	\$315,721	\$241,834	-23.4	\$540	\$886	64.1
Agriculture, Forestry, Fishing and Hunting	\$209,411	\$0	-100.0	\$435	\$0	NA
Construction	\$9,290,998	\$20,608,967	121.8	\$1,025	\$1,444	40.9
Manufacturing	\$79,850,111	\$85,274,700	6.8	\$1,596	\$1,685	5.6
• Durable Goods Manufacturing	\$72,673,633	\$74,300,320	2.2	\$1,723	\$1,872	8.6
• Non-Durable Goods	\$7,176,478	\$10,974,380	52.9	\$914	\$1,005	10.0
Service-Providing Domain	\$203,318,814	\$256,275,925	26.0	\$995	\$1,151	15.7
Trade, Transportation & Utilities	\$47,626,810	\$58,637,581	23.1	\$796	\$1,014	27.4
• Utilities	\$636,105	\$852,106	34.0	\$1,087	\$1,490	37.1
• Wholesale Trade	\$16,415,174	\$21,672,567	32.0	\$1,081	\$2,097	94.0
• Retail Trade	\$12,347,227	\$10,125,313	-18.0	\$499	\$464	-7.0
Information	\$21,196,130	\$34,339,657	62.0	\$1,276	\$2,600	103.8
Financial Activities	\$6,286,780	\$9,069,560	44.3	\$1,130	\$1,097	-2.9
• Finance and Insurance	\$4,213,270	\$6,574,422	56.0	\$1,312	\$1,152	-12.2
• Real Estate and Rental & Leasing	\$2,073,510	\$2,495,138	20.3	\$881	\$969	10.0
Professional & Business Services	\$81,331,745	\$76,625,490	-5.8	\$1,689	\$1,541	-8.8
• Professional & Technical Services	\$61,410,784	\$62,302,947	1.5	\$1,985	\$1,968	-0.9
• Management of Companies & Enterprises	\$12,497,752	\$2,674,199	-78.6	\$1,838	\$3,265	77.6
Admin. & Waste Services	\$7,423,209	\$11,648,343	56.9	\$712	\$676	-5.1
Education & Health Services	\$31,579,117	\$52,626,206	66.6	\$687	\$934	36.0
• Educational Services	\$9,221,054	\$9,188,051	-0.4	\$496	\$703	41.7
• Health Care & Social Assistance	\$22,358,063	\$43,438,155	94.3	\$816	\$1,004	23.0
Leisure & Hospitality	\$5,458,671	\$8,226,628	50.7	\$319	\$364	14.1
• Arts, Entertainment, & Recreation	\$670,592	\$978,073	45.9	\$290	\$253	-12.8
• Accommodation & Food Services	\$4,788,079	\$7,248,555	51.4	\$323	\$386	19.5
Other Services, Except Public Administration	\$4,594,378	\$9,037,837	96.7	\$626	\$926	47.9
Public Administration	\$5,245,184	\$7,712,966	47.0	\$1,421	\$1,604	12.9
Total: All Industries	\$292,775,644	\$362,401,426	23.8	\$1,084	\$1,258	16.1

Source: Executive Office of Labor and Workforce Development ES 202 Reports (2009 (Q3) and 2018 (Q3))

The Construction industry experienced a 121.8% increase in total wages between 2009 (Q3) and 2018 (Q3), as well as a 40.9% in average weekly wages. Trade, Transportation & Utilities increased its total wages from \$47.6 million in 2009 (Q3) to \$58.6 million in 2018 (Q3) or by 23.1%, while the average weekly wages increased by 27.4%. Average weekly wages for the Information industry increased by 103.8%, while total wages increased by 62%. Total wages for Education and Health Services increased by 66.6%, while the average weekly wages increased by 36%. Average wages for Leisure and Hospitality, Other Services, Except Public Administration and Public Administration increased by 14.1%, 47.9% and 12.9% respectively.

The only industries experiencing decreases in total wages were Natural Resources and Mining (23.4%), Retail Trade ((18%), and Professional and Business Services (5.8%). In terms of declining average weekly wages, Retail Trade (7%), Financial Activities (2.9%), Professional and Business Services (8.8%), and Administrative and Waste Services (5.1%) were the industries impacted.

Additionally, the highest paying industries during 2018 (Q3) in terms of average weekly wages included Information (\$2,600), Wholesale Trade (\$2,097), Manufacturing (\$1,685), Public Administration (\$1,604) and Professional and Business Services (\$1,541).

Municipal Taxation and Spending

In 2018 the Chelmsford Board of Selectmen created a Tax Classification Study Committee to gather information to help the Board understand the legislative intent and history of tax classification. The Committee would determine the positive and negative effects of implementing a dual tax rate for Chelmsford and study the use of the split rate in other cities and towns, including a survey of the actual shifts implemented by other cities and towns when first adopting a split rate. In addition, the Committee was to study the effect of a Small Commercial Exemption for commercial properties, a Residential Exemption, and exemptions available to individuals.

The Committee published its report in October 2018. The report did not make any specific recommendations. The last paragraph of the “Summary” states: “Whatever choices are made each year by the Board of Selectmen, it should be remembered that tax policy is only one of three major tools that the Selectmen have to affect the overall economic atmosphere of the town. The others are economic development and the budget. The interplay of all three factors is complex and not easily forecast. It is the right and responsibility of the Board of Selectmen to choose among the various options available to provide the broadest benefit for all of Chelmsford”.

In November 2018, at the Board of Selectmen’s annual tax classification hearing, after twenty years of a single tax rate, the Board voted 3-2 to split the tax rate with a twenty-seven (27) percent shift toward commercial, industrial and personal property (ICP).

Compared to communities in the region, Chelmsford has the third highest percentage of commercial and industrially-zoned land of the nine communities in the NMCOG region, after Billerica and Lowell. In Fiscal Year 2019, Chelmsford had the fourth highest commercial and industrial property tax rate in the region. However, the relatively low tax rate makes the town an attractive location for businesses and industries looking to locate in the Greater Lowell area. These tax rates for the communities in the Greater Lowell region are illustrated in Table 3.10 below.

Table 3.10: Chelmsford’s Tax Rates Compared to Communities in the Region – FY 2019

Community	Residential	Open Space	Commercial	Industrial	Personal Property
Billerica	\$13.48	\$0.00	\$31.41	\$31.41	\$31.41
Chelmsford	\$16.35	\$0.00	\$22.21	\$22.21	\$22.06
Dracut	\$13.75	\$0.00	\$13.75	\$13.75	\$13.75
Dunstable	\$17.06	\$0.00	\$17.06	\$17.06	\$17.06
Lowell	\$14.04	\$0.00	\$28.59	\$28.59	\$28.59
Pepperell	\$16.59	\$0.00	\$16.59	\$16.59	\$16.59
Tewksbury	\$15.84	\$0.00	\$27.63	\$27.63	\$27.63
Tyngsborough	\$16.93	\$0.00	\$16.93	\$16.93	\$16.93
Westford	\$16.56	\$0.00	\$16.56	\$16.56	\$16.56

Source: MA Department of Revenue Division of Local Services at a Glance Report 2019, Rate per \$1,000 valuation

COMMUNITY ASSETS AND LIABILITIES

Infrastructure Analysis

This section examines the existing sewer, water supply, and utilities infrastructure in town. By understanding the current infrastructure system, we can begin to assess what additional improvements will be necessary to accommodate future economic development activities.

Sewer Capacity and Wastewater Management

The Town of Chelmsford began its sewer infrastructure program in 1984 with an effort to provide sewer to roughly two-thirds of the community. In 2002, the Sewer Commission became concerned with having sufficient sewer capacity. The Sewer Commission instituted a two-year moratorium on large, unforeseen sewer connections in April 2002. In April 2003 the Sewer Commission petitioned the State Legislature to enact a Home Rule Petition (Chapter 92 of the Acts of 2003) to establish the Chelmsford Sewer System Capital Improvement Fund “to provide the revenue for the increase in the capacity of the system to treat wastewater by purchasing

additional treatment plant capacity within the sewer system servicing the town of Chelmsford, and to provide revenues to provide revenues to do all things necessary to correct, remedy, repair, prevent and prohibit any and all forms of infiltration and inflow from groundwater and other sources of leakage into pipes, facilities and system”. The sewer capacity fee was established in April 2004 and the current fund balance is \$2,306,624. Town Meeting voted later to expand the sewer project to cover the entire town. The last pipe was installed in September 2010 and became active in 2011. The total project cost was \$165 million.

Sewerage is transmitted to the Lowell Regional Wastewater Utility (LRWWU). This utility serves Lowell, Chelmsford, Dracut, Tewksbury and Tyngsborough. A municipal 10 year agreement was approved in 2013. Chelmsford has a separate agreement with Tyngsborough, which is currently being updated.

The Department of Public Works Sewer Division is responsible for the maintenance of the Chelmsford sewer system. This system incorporates approximately 190 miles of gravity and pressure sewer lines and 41 pump stations. The Sewer Division staff developed a comprehensive capital improvement plan in 2016, which included upgrades to the pump stations. A comprehensive Inflow and Infiltration study was performed in 2018 to comply with DEP regulations. This study was designed to help identify areas of the system where groundwater inflow and infiltration could be entering the system. The Sewer Division also conducts ongoing inspections of the pipe and manhole infrastructure with scanning and TV equipment.

The Sewer Division took over maintenance responsibilities for individual residential grinder pumps based on a vote at the 2014 Annual Town Meeting. An outside contractor provides the maintenance service, which is funded by the sewer enterprise fund. Chelmsford is currently allotted 3.01 million gallons per day (MGD) at the LRWWU and 0.35 MGD is transferred to Tyngsborough via existing agreements, leaving Chelmsford with 2.66 gpd. Chelmsford’s most recent average daily flows are shown below in Table 3.12.

Table 3.12: Sewer Flow in Chelmsford, FY 2016 – FY 2018

Year	Flow with Tyngsborough	Flow without Tyngsborough	Percent of Allotted Flow
FY 2016	2.437 MGD	2.340 MGD	80.9
FY 2017	2.597 MGD	2.486 MGD	86.2
FY 2018	2.878 MGD	2.761 MGD	95.6

Source: Chelmsford Department of Public Works

The flows listed above do not include recently approved or pending projects, such as 104 Turnpike Road (268 bedrooms), 50 Hunt Road (159 bedrooms) and Pineview on Gorham Street (168 bedrooms). Potential projects include UMass Lowell West Campus (800 bedrooms), Mercury Computer (600 bedrooms) and a project adjacent to UPS off Brick Kiln Road (240

bedrooms). There are also 108 existing residential homes and nineteen (19) commercial properties not connected to the sewer system. The majority of these homes have waivers due to their distance from the sewer system. The majority of the commercial properties are not currently fronted by the municipal sewer system.

The Department of Public Works is in the beginning stages of discussion with the LRWWU and other communities on options to support the need for additional sewer capacity. Based on a report from Weston & Sampson in August 2020, it was estimated that Chelmsford would need an additional 150,000 to 200,000 gpd of ADF. On September 15, 2020, the Sewer Division enacted a one-year limited moratorium on new sewer connections and increases to flows for existing connections. In addition, the 2020 Fall Town Meeting approved a request for \$150,000 to conduct a Sewer Capacity Study for the following purposes:

- Gather and analyze data regarding wastewater flow at the Lowell Regional Wastewater Facility (LRWF); research potential penalties/consequences if the Town were to exceed its permitted flow;
- Explore options to reduce wastewater flow within the Town of Chelmsford via water conservation, infrastructure maintenance/inflow and infiltration removal, and other measures;
- Pursue an expansion of the permitted flow capacity of the LRWF;
- Investigate the possibility of transporting some wastewater to the Billerica wastewater treatment plant;
- Analyze the possibility of constructing a wastewater treatment facility at Southwell, off Wotton Street;
- Prepare a final report; and
- The \$150,000 appropriation request includes \$60,000 for field investigations at Southwell, if necessary.

At the 2020 Fall Town Meeting, there was also an article to amend the Town Code, Chapter 132 Sewage Disposal, Section 132-2 Connection to public sewer as follows:

- The proposed amendment to the Town's General Bylaw pertaining to sewer connection was prepared by Town Counsel, in consultation with the Public Health Director and Town Manager, as a technical correction.
- The amendment removes references to the dissolved Sewer Commission.
- Clarifies the long-standing sewer regulation that there must be sewer capacity available and a sewer line must be within 300' of a property in order for the Board of Health to require a connection to the public sewer.
- A property owner shall not be required to connect to public sewer for properties, which have existing and properly functioning septic systems or private wastewater treatment facilities.

- The Board of Health may require a connection to the public sewer, if a connection is reasonably available, for septic systems that are not properly functioning and are located in environmentally sensitive areas (as determined by the Board of Health).

Public Water Supplies

Approximately 95% of the Town is serviced by public water systems through one of three water districts – Chelmsford Water District, North Chelmsford Water District and the East Chelmsford Water District. This section examines the specific characteristics of these three water districts, including usage and capacity issues, fee structures, and environmental profiles.

Water Supply Districts

1. Chelmsford Water District

User Demand and District Capacity

The Chelmsford Water District pumps water from 20 wells, which supply three water treatment plants, two full-time plants and one emergency/seasonal plant with a combined potential flow of 2,600 gallons per minute. The District serves approximately 8,600 customer connections. The Chelmsford Water District no longer sells water to the East Chelmsford Water District in 2018.

The Chelmsford Water District withdraws on average approximately 0.93 million gallons of water daily (MGD) from the Concord River Basin, and an additional 1.59 MGD from the Merrimack River Basin for a total of 2.52 MGD. According to the 2020 Annual Statistical Report (ASR) for the District, the combined withdrawals of water from these two basins are approximately 67% of its regulatory capacity. The District will face possible constraints on resources by the adoption of the Sustainable Water Management Initiative (SWMI) in 2014 into the Water Management Act (WMA). This regulatory change has considerable regulatory requirements that place environmental considerations on equal footing with municipal water supply withdrawals. This regulatory change, which is intended to promote the sustainable consumption of water resources while protecting aquatic resources, could be seen as a threat to the Water District's capacity as it is being applied to the ongoing District water withdrawal permit proceedings.

Water District Fee Structures

Table 3.13 illustrates the current water usage rates that became effective December 12, 2019 for the Chelmsford Water District customers. The District does not charge a minimum usage fee. The District employs a four step rate plan per quarter whereby a water user is charged \$5.57 per 1,000 gallons up to 20,000 gallons; \$6.67 per 1,000 gallons from 20,001-50,000 gallons; \$9.24

per 1,000 gallons from 50,001-75,000 gallons; and \$9.97 per 1,000 gallons for anything more than 75,000 gallons.

Table 3.13: Water Usage Rates in the Chelmsford Water District: 2019

Level	Usage	Rate
Step 1	0-20,000 gallons	\$5.57 per 1,000 gallons
Step 2	20,001 – 50,000 gallons	\$6.67 per 1,000 gallons
Step 3	50,001 – 75,000 gallons	\$9.24 per 1,000 gallons
Step 4	More than 75,000 gallons	\$9.97 per 1,000 gallons

Source: Chelmsford Water District, effective January 1, 2019

New service connection rates for Chelmsford Water District customers are determined by the size of the service line being connected to the water supply. Service connection up to one and a half-inch service lines are connected for a \$2,500 fee, which also applies to multiple dwellings, as reflected in Table 3.14. Two, four, and six-inch lines are connected to the water supply at fees of \$4,375, \$9,375, and \$12,500, respectively.

Table 3.14: New Service Connection Rates: 2019

Pipe Size	Fee
Up to 1.5"	\$3,125
Multiple Dwellings	\$3,125 per unit
2"	\$4,375
4"	\$9,375
6"	\$12,500

Source: Chelmsford Water District, effective 2019

Debt bond fees are charged by the district on a quarterly basis, and are determined by meter size. These rates are represented in Table 3.15, and range from \$33 per quarter for 0.75" pipes to \$300 per quarter for 6" pipes.

Table 3.15: Debt Bond Fee: 2019

Pipe Size	Fee Per Quarter
.75"	\$33
1"	\$62
1.5"	\$82
2"	\$104
3"	\$150

Source: Chelmsford Water District, effective 2019

One of the services provided by the water districts in Chelmsford is a fire protection demand analysis. The fee for this service is determined by the size of the building being constructed, and ranges from \$975 for a building under 20,000 square feet to \$5,850 for a building larger than 100,000 square feet. The fee structure for fire protection demand analyses for new construction is illustrated in Table 3.16 on the following page.

Table 3.16: Fire Protection Demand Charges for New Construction: 2019

Building Size	Fee
Up to 19,999 sq. ft.	\$975
20,000 to 39,999 sq. ft.	\$1,950
40,000 to 59,999 sq. ft.	\$2,925
60,000 to 79,999 sq. ft.	\$3,900
80,000 to 99,999 sq. ft.	\$4,875
More than 100,000 sq. ft.	\$5,850

Source: Chelmsford Water District, effective 2019

Another fire protection-related service provided by the water districts in Town is an annual fire protection sprinkler system service. These charges are listed in Table 3.17. The fees for this service are also determined by the size of the building, and range from \$130 for buildings smaller than 10,000 square feet to \$1,560 for buildings larger than 200,000 square feet.

Table 3.17: Annual Fire Protection Sprinkler System Fees: 2019

Building Area	Fee
Up to 9,999 sq. ft.	\$130
10,000 to 19,999 sq. ft.	\$195
20,000 to 29,999 sq. ft.	\$260
30,000 to 39,999 sq. ft.	\$325
40,000 to 49,000 sq. ft.	\$390
50,000 to 59,999 sq. ft.	\$455
60,000 to 69,999 sq. ft.	\$520
70,000 to 79,999 sq. ft.	\$585
80,000 to 89,999 sq. ft.	\$650
90,000 to 99,999 sq. ft.	\$715
100,000 to 149,999 sq. ft.	\$1,040
150,000 to 199,999 sq. ft.	\$1,332
More than 200,000 sq. ft.	\$1,560

Source: Chelmsford Water District, effective 2019

Environmental Quality of the District

All of the District's twenty (20) wells are protected by well head protection zones. The District owns and/or controls all of the Zone I areas as required by MassDEP regulations. The Zone I requires either a 400 foot radius for a wellhead or a 250-foot radius for a wellhead. Additionally, the District water resources have an added protection from the Town's adoption of an Aquifer Protection District Bylaw cited in Article XIV Aquifer Protection District of the Town of Chelmsford's Bylaws (Section 159-69 through 159-75). Because of a lack of subsurface hydro-geologic barriers (i.e. clay) which helps prevent contaminant migration, the twenty wells are considered to be located in an aquifer with a *high* vulnerability of contamination. Presently, two of the wells—both located on Canal Street—are reserved for emergency or seasonal purposes only. Given this susceptibility to contamination, all the water withdrawn is treated through one of three possible treatment plants.

According to the District's 2004 *Source Water Assessment and Protection Report*, numerous potentially contaminating land uses are located within the Zone II water supply protection boundaries. These include agricultural activities-- such as fertilizer storage facilities and commercial nurseries; commercial uses, including, but not limited to, a body shop, several gas stations, bus and truck terminals, dry cleaners, and a rail yard; industrial uses, including an asphalt plant, chemical manufacturer and storage center, and an electroplater; and a variety of residential and miscellaneous environmental threats. There are more than 35 underground storage tanks located within the protection boundaries, and five Tier-Classified 21-E (brownfield) sites, including the Silicon Transistor Corporation site, which is classified as a Tier 1A site.⁹ The Silicon Transistor Corporation site is located less than 1,000 yards from two separate Chelmsford Water District wells. The road network that traverses these two districts also poses a threat, as roadsides are often where hazardous materials are dumped illegally, and stormwater runoff contains a number of pollutants.

Given the susceptibility of the water supply protection areas in Chelmsford, the Massachusetts Department of Environment (DEP) has offered a number of planning strategies which could be employed to help mitigate the risk of groundwater contamination in Town. In terms of transportation corridor issues, the state recommended partnering with neighboring water districts to submit formal requests to the MassDOT and the Town of Chelmsford to have areas of the roadways designated as "Low Salt Areas". A second strategy articulated was to design stormwater drainage systems along the main corridors, particularly Route 3. Similar to the road network strategies, the state recommended that a best management practices plan be instituted for the rail right-of-ways to address herbicide and pesticides overuse and help mitigate the negative impacts of cargo spills and leaks on the tracks.

In terms of the threat of environmental contamination from businesses operating in the water supply protection areas, Massachusetts DEP recommends that the water district work with local business owners to train them in the proper use, disposal, and emergency response to hazardous materials that they handle in their daily operations. Ultimately, a Best Management Practices and Inspection program would be devised to ensure that businesses are properly handling, storing, and disposing of hazardous chemicals and pollutants.

Infrastructure Challenges for the Chelmsford Water District

The Chelmsford Water District is in the process of updating its long-range capital improvement plan. Renewal continues to be a top priority, but, in addition to this, the following challenges are faced by the Chelmsford Water District:

⁹ Tier 1A sites pose the highest level of risk, with a release receiving a total score equal to or greater than 550. These sites/releases require a permit and the person undertaking response actions must do so under direct MassDEP supervision.

- **Water Management Act Permit Issues**
 - The District is close to maximizing its permitted value on the Merrimack River (Crooked Springs Water Treatment Plant) side of the system. In 2020 the permitted withdrawal level was 1.73 MGD on average for the year and the withdrawal was 1.6 MGD. The District continues to look for resources and ways to supplement this side of the District.
 - While more water is available on the Concord River Basin (Riverneck Water Treatment Plant) as the water demands are lower (2.02 MGD average vs. 0.81 MGD consumed), these wells have seen increasing iron levels, which reduce the flow capacity of the plant, as well as the wells.
 - As a result of the above, the Smith Street Water Treatment Plant is used as a supplement plant to help address some of these issues, which have been increasing over time.
- **Redundancy Issues**
 - Meadowbrook No 3 wellfield is 42% of the permitted capacity in the Merrimack River basin. Losing this well could be detrimental to system operations, likely resulting in an emergency situation.
 - During severe droughts, the District has interconnected manually with other utilities in the past. To help address this issue, a permanent emergency interconnection with the City of Lowell would provide a sanitary, easily controllable supply in the event a connection was needed to maintain supply during an emergency.

2. East Chelmsford Water District

User Demand and District Capacity

The East Chelmsford Water District owns two wells located on Canal Street with a combined yield of 700 gallons per minute. The District serves approximately 700 customers, including 324 residences and 70 businesses. East Chelmsford is fairly built out, and at this point there are no capacity constraints being experienced by the District. The residential property at 62 Riverneck Road was developed to increase the capacity of the District, while another property at 243 Riverneck Road remains available as well. There are also two commercial properties, located on Route 129 and Mill Road, which could be developed. The owners of these properties purchased them more than twenty years ago, but have not developed them yet. The District expects that these properties will be developed and the District will be able to accommodate an increased demand for services.

Water District Fee Structures

Table 3.18 illustrates quarterly water usage rates in 2020 for East Chelmsford Water District residential customers. For residential uses, a charge of \$81.02 is levied for up to 12,500 gallons, while \$9.48 is charged per 1,000 gallons for usage exceeding this limit. In 2009, senior citizens paid significantly less for water: \$28.93 for the first 12,500 gallons and \$9.48 per 1,000 gallons beyond that. Light commercial and commercial/industrial users paid \$138.91 and \$231.52 for the first 10,000 gallons used in 2009. Usage beyond 10,000 gallons was billed at \$8.50 per 1,000 gallons.

Table 3.18: Quarterly Service Rates - 2009 and 2020

Customer Type	Rate
Residential Uses*	\$81.02 per 12,500 gallons; \$9.48 per 1,000 gallons over
Senior Citizens	\$28.93 per 12,500 gallons; \$6.48 per 1,000 gallons over
Light Commercial	\$138.91 per 10,000 gallons; \$8.50 per 1,000 gallons over
Commercial/ Industrial	\$ 231.52 per 10,000 gallons; \$8.50 per 1,000 gallons over

Source: East Chelmsford Water District, 2009 and 2020*

In 2009, new service fees were determined by the type of user. For residential users, a \$2,000 fee was charged for structures up to 15,000 square feet, with an additional fee of \$100 per 1,000 square feet above 15,000 square feet. These fees are described in Table 3.19.

Table 3.19: New Service Fees

Customer Type	Rate
Commercial/ Industrial	\$2,000 for up to 15,000 sq. ft. \$100 per additional 1,000 sq. ft.
Residential	\$2,000 per unit

Source: East Chelmsford Water District, 2009

Table 3.20 below lists the annual fire protection fees, which are determined by the area size of the building.

Table 3.20: East Chelmsford Water District Annual Fire Protection Fees: 2009

Area of Building	Annual Fee
10,000 to 19,999 sq. ft.	\$1,200
20,000 to 29,999 sq. ft.	\$1,400
30,000 to 39,999 sq. ft.	\$1,800
40,000 to 49,999 sq. ft.	\$2,400
50,000 to 59,999 sq. ft.	\$2,900
60,000 to 69,999 sq. ft.	\$3,400
70,000 to 79,999 sq. ft.	\$3,900
80,000 to 89,999 sq. ft.	\$4,400
90,000 to 99,999 sq. ft.	\$4,900
100,000 to 109,999 sq. ft.	\$5,300

Source: East Chelmsford Water District, 2009

Environmental Quality of the District

Like the two other districts operating in town, the East Chelmsford Water District's wells are considered to be at high risk for contamination, especially from roadway stormwater runoff and from local businesses using hazardous materials in their operations. The recommendations for mitigating these risks are identical to those described with the other two districts: improving stormwater runoff through roadside capture basins and other low-impact design (LID) techniques, formally requesting that some roads be designated for "Low Salt Use," and partnering with business owners to train them in the proper use, handling, and disposal of chemicals.

3. North Chelmsford Water District

User Demand and District Capacity

The North Chelmsford Water District owns and operates four gravel packed wells and two deep bedrock wells within the Bomil Wellfield at 55 Richardson Road, with a combined pumping yield of approximately 2,532,000 gallons per day. The District serves approximately 3,200 customers. In June 2011, the Water District received approval from MassDEP to put the 2.2 million gallon Ultra-Membrane Filtration Water Treatment Plant on line. This new 13,000 ft², \$7.8 million dollar water treatment plant was designed to improve the water quality and to meet the Federal Environmental Protection Agency Safe Water Drinking Water Act and the Massachusetts Department of Environmental Protection drinking water regulations and standards for the North Chelmsford Water District residents.

The North Chelmsford Water District does not operate with any significant constraints to capacity. However, they have noted that they will need to obtain an increased registered water withdrawal permit for the Water Treatment Facility to keep up with future growth. The existing registered withdrawal rate is 940,000 gallons per day and the Water District added two new wells and a replacement well in order to continue to operate without constraint in the future.

The Water District entered into a 15-year Tank Maintenance and Asset Management Plan for the 4.1 million gallon Swain Road steel water tank and 1.8 million gallon Washington Street steel water tank. This will ensure that the water towers are in compliance with all OSHA and applicable state laws. The majority of the cost will be paid for through the cellular contract monies that are collected from the long term Sprint and Verizon contracts.

The North Chelmsford Water District enforces a water use restriction from May 15th to October 15th in compliance with the water withdrawal permit to meet the per capita per day figures and the ten percent of unaccounted water. Leak detections are conducted every two years on the

entire distribution system of 40 miles of water mains, 400 fire hydrants, and 3,200 water services.

Water District Fee Structures

Residential properties are allowed 15,000 gallons every six months. Meters are read and customers billed for their usage biannually. The minimum charge for 15,000 gallons is \$80 with an increasing block rate: 15,001-30,000 gallons is \$5 per 1,000 gallons; 30,001-45,000 gallons is \$5.50 per 1,000 gallons; 45,001+ gallons is \$6 per 1,000 gallons. Commercial and industrial properties are allowed 15,000 gallons per quarter and the meters are read quarterly. The minimum charge for 15,000 gallons is \$80 with an increasing block rate: 15,001-30,000 gallons is \$5 per 1,000 gallons; 30,001-45,000 gallons is \$5.50 per 1,000 gallons; 45,001+ gallons is \$6 per 1,000 gallons. Buildings/multi-families containing more than one unit are billed at \$80 per unit per quarter and allowed 15,000 gallons per unit or actual water usage, whichever is greater.

As reflected in Table 3.21 below, the North Chelmsford Water District charges a domestic demand charge for customers based on their category: Residential or Commercial. These rates range from \$3,000 for a single residential unit or \$5,000 for residential multiple dwelling units. Commercial users are charged \$7,500 per unit.

Table 3.21: Demand/Impact Fee Charge by Category: 2019

Fee Category	Domestic Demand Charge
Single dwelling Residential	\$3,000
Multi-dwellings Residential, per unit	\$5,000 per unit
Single Commercial, per unit	\$7,500
Multi-dwellings Commercial, per unit	\$7,500 per unit

Source: North Chelmsford Water District, 2019

Table 3.22: Bond Debt Fees: 2019

Pipe Size	Residential	Commercial
5/8" or 3/4"	\$70	\$55
1"	\$85	\$80
1.5"	\$110	\$105
2"	\$135	\$180
3"	\$160	\$185
4"	\$185	\$190

Source: North Chelmsford Water District, 2019

Unlike the Chelmsford Water District, which charges the same bond debt fee for residential and commercial customers, the North Chelmsford Water District has configured rates for residential and commercial customers. Like the other two water districts, these fees are determined by pipe size. For residential customers, fees range from \$70 semi-annually for 5/8" or 3/4"-inch pipes to \$185 for 4" pipes. Each additional residential unit is \$25 billed in April and October.

Commercial rates range from \$55 to \$190 per quarter. Each additional commercial unit is \$30 billed in January, April, July and October. These rates are illustrated above in Table 3.22.

Table 3.23: Sprinkler Demand Charges: 2019

Building Size	Fee
Up to 19,999 sq. ft.	\$5,000
20,000 to 39,999 sq. ft.	\$6,000
40,000 to 59,999 sq. ft.	\$7,000
60,000 to 79,999 sq. ft.	\$8,000
80,000 to 99,999 sq. ft.	\$9,000
More than 100,000 sq. ft.	\$10,000

Source: North Chelmsford Water District, 2019

The North Chelmsford District provides a Sprinkler Demand service for new fire sprinklers similar to the other two water districts. The fee for this service is determined by the size of the total square footage of the entire building area that is sprinkled building area that is sprinkled and ranges from \$5,000 for a building smaller than 20,000 square feet to \$10,000 for a building larger than 100,000 square feet. These rates are listed in Table 3.23 above.

The North Chelmsford Water District also offers an Annual Fire Protection Sprinkler System service to its customers, whose fee is based on building size. Fees range from \$200 annually for buildings with an area smaller than 10,000 square feet to \$1,500 annually for buildings larger than 200,000 square feet. Table 3.24 summarizes the 2019 fee structure for this service.

Table 3.24: 2019 North Chelmsford Water District Fire Protection Sprinkler System Fee

Area of Building	Sprinkler System Fees
Up to 9,999 sq. ft.	\$200
10,000 to 19,999 sq. ft.	\$220
20,000 to 29,999 sq. ft.	\$240
30,000 to 39,999 sq. ft.	\$300
40,000 to 49,000 sq. ft.	\$360
50,000 to 59,999 sq. ft.	\$420
60,000 to 69,999 sq. ft.	\$480
70,000 to 79,999 sq. ft.	\$540
80,000 to 89,999 sq. ft.	\$600
90,000 to 99,999 sq. ft.	\$660
100,000 to 149,999 sq. ft.	\$960
150,000 to 199,999 sq. ft.	\$1,230
More than 200,000 sq. ft.	\$1,500

In addition to a land use-based bond debt fee (residential and commercial), the North Chelmsford Water District charges a sprinkler bond debt fee, based on the area of a building. These fees are billed quarterly and range from \$55 per quarter for buildings smaller than 10,000 square feet to

\$1,255 per quarter for buildings larger than 250,000 square feet. The fee structure for this service is provided in Table 3.25.

Table 3.25: 2019 Sprinkler Bond Debt Fees

Area of Building	Fee
Up to 9,999 sq. ft.	\$50
10,000 to 19,999 sq. ft.	\$105
20,000 to 29,999 sq. ft.	\$155
30,000 to 39,999 sq. ft.	\$205
40,000 to 49,000 sq. ft.	\$255
50,000 to 59,999 sq. ft.	\$305
60,000 to 69,999 sq. ft.	\$355
70,000 to 79,999 sq. ft.	\$405
80,000 to 89,999 sq. ft.	\$455
90,000 to 99,999 sq. ft.	\$505
100,000 to 149,999 sq. ft.	\$755
150,000 to 199,999 sq. ft.	\$1,005
200,000 to 249,999 sq. ft.	\$1,130
More than 250,000 sq. ft.	\$1,255

Source: North Chelmsford Water District, 2019

Environmental Quality of the District

Similar to the wells operated by the Chelmsford Water District, the North Chelmsford Water District water supply is designated at high risk for contamination because of a lack of hydrogeologic barriers and because of the mix of commercial, industrial, residential, and transportation uses within the Zone II protection area. Many of the key issues and planning strategies identified in the Chelmsford Water District's *Source Water Assessment and Protection Plan* are applicable for the North Chelmsford Water District, especially in terms of transportation corridors, rail rights-of-way, and local business owners. However, the North Chelmsford report incorporates an action plan for mitigating pollution and runoff caused by improper road salt storage facilities, one of which is located in the wellhead protection area for the district.

Utilities and Telecommunications

Chelmsford is well serviced in terms of utilities and telecommunications. Comcast and Verizon offer cable and cable internet services, while National Grid provides gas and electricity to residents and businesses in town. The National Grid rates are broken down into supply and delivery service according to the amount of electricity used. National Grid uses delivery fees to address operating costs, which offset the cost of maintaining and building infrastructure that transports the electricity to customers. Tables 3.26 through Table 3.28 shows the rates established by National Grid for small (G-1), medium (G-2) and large (G-3) businesses. In this case, business size is determined by average kilowatt hours (kWh) used per month.

Table 3.26 below shows National Grid’s rates and service delivery charges for small businesses. National Grid defines small businesses as customers with a usage of less than 10,000-kilowatt hours (kWh) per month or a maximum demand of less than 200 kWh. Delivery service under this rate is available for all purposes.

Table 3.26: National Grid Rates and Delivery Service (G-1)

Type of Charge	Rate
Customer Charge	\$10.00/month
Distribution Charge	
Unmetered Charge	\$7.50 per month
Distribution Charge	5.077¢/kWh
Transmission Charge	2.516¢/kWh
Transition Charge	0.061¢/kWh
Energy Efficiency Charge	0.640¢/kWh
Renewable Energy Charge	0.050¢/kWh

Source: National Grid, Summary of Rates, Massachusetts 2018

Table 3.27 shows the rates for businesses using more than 10,000 kWh/ month but less than 200 kWh. It is available for all purposes and contains a variety of special clauses and conditions.

Table 3.27: National Grid Rates and Delivery Services G-2

Type of Charge	Rate
Customer Charge	\$25.00/month
Distribution Demand Charge	\$8.50/kW
Distribution Energy Charge	1.067¢/kWh
Transmission Charge	2.333¢/kWh
Transition Charge	0.061¢/kWh
Energy Efficiency Charge	0.640¢/kWh
Renewable Energy Charge	0.050¢/kWh

Source: National Grid Summary of Rates, Massachusetts 2018

The G-3 rates shown in Table 3.28 on the following page are designed for large business customers. It is mandatory for any customer who has a -month average monthly demand of 200 kW or greater for three consecutive months. This rate contains a variety of special clauses and conditions, including different rates for “Peak” and “Off-Peak” hours.

Table 3.28: National Grid Rates and Delivery Service (G-3)

Type of Charge	Rate
Customer Charge	\$223.00/month
Distribution Demand Charge	\$5.76/kW
Energy On-Peak	1.464¢/kWh
Energy Off-Peak	0.864¢/kWh
Transmission Charge	2.311¢/kWh
Transition Energy Charge	0.057¢/kWh
Energy Efficiency Charge	0.640¢/kWh
Renewable Energy Charge	0.050¢/kWh

Source: National Grid Summary of Rates, Massachusetts 2018

Commercial and Industrial Activity

This section examines commercial and industrial permit trends in order to gauge the level of economic development activity in Chelmsford. Following the permit analysis, a summary of some of the economic development incentives that the town promotes are offered.

Commercial Building Permits Issued

The commercial and industrial activity in a town can be measured by the number of building permits issued over time. Between 2015 and 2019, twenty-one (21) commercial (valued at \$67,171,500) and two (2) industrial permits (valued at \$1,355,350) were issued by the Chelmsford Building Department. The 2019 commercial permits include all those issued with a value greater than \$100,000, except for churches. One permit was valued at \$49 million, which inflates the overall numbers as compared to previous years. These figures are listed in Table 3.29.

In the past, Chelmsford residents have supported commercial and industrial development to alleviate the tax burden on residents. The Town is also committed to promoting commercial and industrial development in order to bolster the local tax base and help remedy the deficits in their operating budgets. A number of strategies have been implemented to help promote commercial and industrial development and expansion in town.

Table 3.29: Commercial and Industrial Permits Issued in Chelmsford, 2015-2019

Year	Commercial		Industrial	
	No. of Permits	Valuation	No. of Permits	Valuation
2015	1	\$350,000	NA	NA
2016	1	\$1,703,830	2	\$1,355,350
2017	3	\$10,936,578	NA	NA
2018	2	\$813,000	NA	NA
2019	14*	\$53,368,092	NA	NA
Total	21	\$67,171,500	2	\$1,355,350

Source: Chelmsford Building Department *Commercial permits greater than \$100,000

Development Incentives and Expedited Permitting Tax Incentives

The Town of Chelmsford has been an active participant in the Commonwealth's *Economic Development Incentive Program* (EDIP), which is a three-way partnership between the Commonwealth of Massachusetts, a municipality located within an Economic Target Area (ETA), and a growing company. Based upon recent changes to the EDIP program, every community in Massachusetts is eligible to participate. The process for this incentive program is as follows: first, a company and the respective municipality agree to a tax exemption schedule on future real property taxes. The company then obtains state approval for a 5% investment tax credit. This credit takes the form of a state income tax reduction. Thirdly, the company commits

to a job growth and private investment schedule. These incentive programs typically continue for five to twenty years. The EDIP program offers several advantages to growing companies, including reducing the financial burden required to grow a company and providing a flexible framework which can accommodate variable tax exemption structures and agreement durations. Past participants in the EDIP program included Arbor Networks (6 Omni Way), Circles (300 Apollo Drive) and Hittite Microwave (20 Alpha Road). The Town continues to work closely with the Massachusetts Office of Business Development (MOBD) and MassDevelopment to support the growth of businesses in Chelmsford.

Business Licensing and Permitting Assistance

The Chelmsford Economic Development Commission (EDC) has focused on assisting local businesses through the town's permitting process. Since the development of the *Chelmsford Master Plan: Vision Quest 2020*, the Town has hired a Director of Business Development to work closely with the EDC, the Community Development Department and the local business community. Working with the Northern Middlesex Council of Governments (NMCOG), Chelmsford staff and the EDC were able to develop the *Chelmsford Business and Permitting Guide (January 2019)* through funding provided by the Massachusetts Department of Housing and Community Development (DHCD). This business guide lays out the procedures to secure business permits, as well as building permits for land development. The guide also focuses on the special steps needed to permit retail stores, food establishments and service or office businesses. The guide is on the Town's web site so that prospective businesses can review the permitting process prior to meeting with local staff. Businesses appreciate a streamlined permitting process in determining where they locate so the Town has an advantage over other communities with the guide. Prospective investors also review a community's web site to determine how supportive the community will be in addressing the needs of expanding businesses.

Balance Between Economic Growth and Quality of Life

A successful approach to economic development requires a balance between economic growth and quality of life. This balance is reflected through public input through the Master Plan process and an active public participation process related to economic development projects. In order to receive public input, the Master Plan Update Committee developed a written survey as part of the 2020 Master Plan development process. More than a thousand residents (1,017) responded to the survey and their responses are summarized below:

7e. Economic Development: Please indicate whether you would rate the following services, facilities, and characteristics, as they relate to Chelmsford, as excellent, good, fair or poor.

	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>NA</u>
<u>Access to Employment</u>	120 (12.2%)	426 (43.4%)	188 (19.1%)	54 (5.5%)	194 (19.8%)

Availability and access

to goods and services 226 (22.6%) 516 (51.6%) 166 (16.6%) 38 (3.8%) 55 (5.5%)

More than half of respondents (55.6%) rated “access to employment” as Good to Excellent, while nearly three-quarters of respondents (74.2%) rated “availability and access to goods and services” as Good to Excellent.

11. On a scale of 1-5, how important is it for the Town to establish any of the following as priorities?

- **Restricting or prohibiting business/commercial development**

1) Not	2) Slightly	3) Moderately	4) Very	5) Extremely
<u>Important</u>	<u>Important</u>	<u>Important</u>	<u>Important</u>	<u>Important</u>
252 (25.5%)	226 (22.9%)	230 (23.3%)	143 (14.5%)	136 (13.8%)

- **Creating additional opportunities for small scale/neighborhood style business establishments.**

1) Not	2) Slightly	3) Moderately	4) Very	5) Extremely
<u>Important</u>	<u>Important</u>	<u>Important</u>	<u>Important</u>	<u>Important</u>
55 (5.5%)	89 (8.9%)	260 (26.1%)	339 (34.1%)	252 (25.3%)

- **Encouraging more intense economic development in strategic locations**

1) Not	2) Slightly	3) Moderately	4) Very	5) Extremely
<u>Important</u>	<u>Important</u>	<u>Important</u>	<u>Important</u>	<u>Important</u>
98 (9.9%)	126 (12.8%)	238 (24.1%)	280 (28.3%)	246 (24.9%)

Slightly more than a quarter of respondents (28.3%) thought that “restricting or prohibiting business/commercial development” was Very or Extremely Important. Nearly 60% of respondents (59.4%) thought that creating additional opportunities for small scale/neighborhood style business establishments” was Very or Extremely Important, while more than half the respondents (53.2%) felt that “encouraging more intense economic development in strategic locations” was Very or Extremely Important.

12. If every Chelmsford resident were given \$100 in town funds, which three projects or initiatives would you fund with your share?

- Support new businesses – 209 responses (20.6%) – 6th place.

“Support for new businesses” followed education, road/sidewalks and open space, but outpaced seven other issues.

In 2018 the Chelmsford Economic Development Commission issued the *Chelmsford 2018 Town-Wide Business Survey* through a collaborative effort by Chelmsford town staff, the Chelmsford Economic Development Commission (EDC) and the Northern Middlesex Council of Governments (NMCOG). The survey was made available online from October 2, 2018 to November 9, 2018. E-mail invitations were sent to local businesses by the Town of Chelmsford, the Greater Lowell Chamber of Commerce (GLCC) and the Chelmsford Business Association (CBA). Chelmsford staff and EDC members visited approximately 300 businesses to inform them about the survey. Eighty-eight (88) surveys were submitted.

The results of the overall survey were as follows:

- More than 40% of the businesses surveyed (41%) had been located in Chelmsford for more than twenty years.
- Slightly more than a third of the businesses (36%) had 1-4 employees.
- The principal industries responding to the survey were in the Professional, Scientific & Technical Services and Finance, Insurance, Real Estate & Rental industries.
- The major benefits to locating in Chelmsford were Interstate Highway Access, Proximity to Customers and Close to Personal Residence.
- The major challenges to locating in Chelmsford were Infrastructure, Taxes and Traffic/Access.
- Most of the respondents (97%) were pleased with their location within Chelmsford.
- At least a quarter of the respondents had utilized business development programs from the Chelmsford Business Association (55%), the Greater Lowell Chamber of Commerce (46%), UMass Lowell (33%) and Middlesex Community College (25%).
- More than half of the respondents were very satisfied with the business development programs from the Chelmsford Business Association (69%), MassDevelopment (67%), UMass Lowell (61%), the Greater Lowell Chamber of Commerce (60%), and the Greater Lowell Workforce Development Board (57%).
- When asked whether the Town provided adequate business support, based on a 1-10 scale with 10 being the most supportive, the responses averaged 6.4.
- When asked what the Town could do to better serve businesses, more than half the respondents identified Tax Incentives/Lower Taxes (55%) and Improve the Appeal of Commercial Areas (51%).

Of the eighty-eight (88) survey respondents, thirty-two (32) respondents owned commercial or industrial property. Among this group, 52% had owned property in Chelmsford for more than twenty years. Their major challenges related to square footage vacancies were Lack of Interest (54%), Lack of Bankable/Creditable Tenants (23%), Lack of Parking (15%) and Lease Negotiations (8%). Most of the respondents (84%) were familiar with the zoning bylaw that applied to their property. A majority of the respondents (63%) indicated that they would not be interested in supporting or participating in a Business Improvement District (BID).

Twenty-five (25) of the responses, or 28%, were from businesses or property owners located in the Route 129 area. When asked what amenities are available on site to employees at their location, 33% of the respondents said “food truck service”, while another 25% said “self-service cafeteria”. More than 40% of the respondents said that their business or staff would use the following services on a weekly basis: Restaurants located on Route 129, Retail Shopping, Food truck in parking lot and walking paths. When asked what three initiatives the Town should focus on in the Cross Roads area to benefit their businesses, the top responses were “Marketing efforts to increase Chelmsford’s visibility (58%), Improve walkability (47%) and Infrastructure improvements other than walkability and bicycle access (37%). Most of the businesses (57%) were not aware of the business shuttle services available from the Middlesex 3 Coalition Transportation Management Association (TMA). The majority of the businesses (65%) were interested in actively participating in a business association for the Cross Roads at Route 129.

Economic Development Opportunities in Chelmsford

The 2010 *Chelmsford Master Plan* identified seven areas of town where future development and economic revitalization efforts should be targeted. These areas were Center Village, the Route 129 Technology Corridor, Drum Hill/ Technology Drive, Vinal Square/ North Chelmsford Mill District, the Route 3/ Route 40 Interchange, Route 110/ Littleton Road, and the Route 110/Route 3 Shopping District. The following section updates the economic development visions for these areas that were articulated in the town’s Master Plan.

Center Village

Center Village (CV) is the historic downtown area of Chelmsford, containing a mix of residential and commercial land uses in addition to churches, open space, and the town’s civic institutions. Over the last decade, the CV has seen significant improvements consistent with the recommendations in the 2010 Master Plan. The CVS and Papa Gino’s sites continue to be underutilized. The former CVS site was developed into a Med Express, but has since closed and remains vacant. The Papa Gino’s site remains open despite numerous others being closed over the years. The Old Town Hall on North Street was completely restored and is now known as The Chelmsford Center for the Arts. The Odd Fellow’s Building in Central Square is in the process of being permitted for re-use into a 100-seat restaurant on the first floor and eight (8) apartments on the upper floors. In addition, a 32 unit condominium development is also being permitted in the parking area behind the Odd Fellow’s building. This development will also include the historic restoration and reuse of the Fiske House for commercial uses.

These properties are located in Center Village and have been identified as key opportunities to promote economic development while preserving the historic integrity of the downtown. The former industrial property has been redeveloped into a 32- unit condominium development,

including the first phase of the Brook Walk along Beaver Brook and an 8.45-acre former Stop and Shop site has been completely redeveloped as retail and restaurants.

Additionally, the 2010 Master Plan recommended that the town determine the long-term future uses of the properties that it owns in Center Village and reutilize a number of commercial properties along Chelmsford Street. By addressing these objectives, the town hopes to transform the area into a “lively, mixed-use village district with strong retail, commercial uses, and housing” (Chelmsford Economic Development Plan, 46).

Other recent areas of opportunity include 9-13 Acton Road. This 30,000 square foot commercial building has been on and off the market over the years and struggles with vacancies. Last year this property was proposed for a 32 unit multi-family development via the Center Village Overlay District (CVOD). However, that project has not moved forward and consideration is being given to a town house style development. The former Mobil gas station and vehicle repair shop has been demolished and the property owner is considering redevelopment options. The Center Village Action Committee continues to oversee and promote development in the CV in accordance with the 2013 Center Village Master Plan.

Route 129 Technology Corridor

The technology corridor located along Route 129 is Chelmsford’s largest commercial and industrial business district, with thirteen of the town’s top fifteen employers located there, needs to be updated. Over the past decade, significant market changes have occurred and the Town has taken extensive actions as well. While the 2010 Master Plan identified a number of land use, zoning and economic development items for consideration, the Route 129 area was functioning adequately within the marketplace. Shortly thereafter, Kronos, the town’s largest employer and business (based upon square footage over four separate buildings), announced its departure to Cross Point in Lowell, placing the entire business under one roof with robust amenities.

The departure of Kronos served as a “wake-up call” and catalyst and validated the 2010 Master Plan recommendations. Unfortunately, an initial re-zoning attempt failed to receive support from the Planning Board in 2013. A concerted effort was then undertaken to involve a number of stakeholders, including the Economic Development Commission, Finance Committee, Select Board, and Assessors to develop datasets to better articulate the challenges facing the Route 129 area. In 2016 MassDevelopment awarded the Town a site readiness grant for \$100,000. This grant resulted in *CHELMSFORD CROSS ROADS AT ROUTE 129: Repositioning a Suburban Office Park for a New Era*, which provided a comprehensive assessment of existing conditions, a market analysis and a series of recommendations that validated the 2010 Master Plan recommendations. One significant departure from the previous recommendations was that multi-family housing should be a critical component in the redevelopment of the Route 129 area.

There are many first generation, single story buildings located in the area. Rather than completely redevelop these vacant properties, the town has chosen a strategy of using Tax Increment Financing (TIF) to attract new businesses to the empty spaces. Additional plans for the corridor include adding some amenities such as restaurants and personal services within a walkable distance to the technology park, clarifying the town's zoning bylaw with respect to biotechnology and research and development firms so as to promote the park as a welcoming place for these types of industries, and upgrading the first generation buildings, which now serve as affordable space for small and start-up businesses. The Town has approved some positive zoning changes and received a Housing Choice capital grant to deal with some infrastructure issues in the area. In the long term, as vacant properties fill up, there are two sites (a 10-acre undeveloped site and a 5-acre former mulch processing facility) identified for possible new office or commercial construction. Ultimately, the town hopes to promote the Route 129 Technology Corridor as one of the "premiere corporate destinations in the Merrimack Valley".

Drum Hill/ Technology Drive

The Drum Hill Technology Park was originally conceived as the future home for high tech businesses in Chelmsford. However, the development of the area has mirrored the ups and downs of the regional real estate market and has ultimately taken on a much more diverse character, which includes office buildings, research and development firms, a medical center, and specialized senior housing.

In part, because of road and infrastructure improvements, which have attracted developers to the area, this district has approached build-out. The last decade has seen primarily redevelopment, including two underutilized parcels on Jean Avenue, redeveloped into a self-storage facility, Wesley Street, approved for redevelopment into an indoor contractor's condo yard/facility, the environmental remediation and proper closure of the 30-acre Glenview Sand and Gravel site, and the former 30-acre UMass Lowell West Campus, which was sold via auction last year and has been considered for housing development. The property at 21-29 Drum Hill was redeveloped through the demolition and construction of a 10,000 square foot structure. One of the last developable parcels is located in the Limited Industrial zoning district at 10 Technology Drive.

The town envisions this area as "an attractive and convenient shopping and business location...[where] the development of large sites on the periphery of the district serve to strengthen the community tax base and create new centers of activity" (Chelmsford Economic Development Plan, 52). Two of the key steps toward achieving this vision are completing infrastructure projects, particularly road and traffic improvements, as well as developing design guidelines to promote a consistent aesthetic to the area. NMCOG worked with the town of Chelmsford and the business community in this area to make additional recommendations for Drum Hill. These recommendations should be implemented as part of the Master Plan.

Vinal Square/North Chelmsford Mill District

Based on a recommendation in the 2010 Master Plan, a Master Plan for the Vinal Square/North Chelmsford Mill District was completed in 2013 with assistance from NMCOG. During the past seven years, there have been relatively few changes. The property at 59-65 Princeton Court received town approvals to construct eighteen (18) new residential units and rehabilitate the existing eighteen (18) units on site. The Vinal Square/Mill District area of North Chelmsford contains a number of significant economic development opportunities, including the revitalization of the former Southwell Combing Company mill, the North Chelmsford Town Hall, and the historic mills located at 51 and 61 Middlesex Street and 70 Princeton Street. To date there has been the installation of solar at the Southwell Combing Company and the North Chelmsford Town Hall has been restored and is being used as a community meeting center. The North Village Master Plan Committee continues to oversee and promote development in Vinal Square in accordance with the 2013 Master Plan.

Many residents and business owners have also advocated for the construction of a commuter rail stop in this district, should the proposed extension of the Lowell MBTA line into New Hampshire be implemented. Adding a stop would bolster perceptions that the district is an ideal location for commuters to live, and improve the area as a candidate for transit-oriented development funding. This new and lively mixed-use center, while honoring the industrial history of the town, would become a model for compact, mixed use development in the future.

Route 3/Route 40 Interchange

This area experienced significant changes and attention over the last decade. For instance, a 66.37-acre town-owned parcel located on Oak Hill Road, which was viewed as a potential affordable housing development, has been formally conveyed to the Conservation Commission as open space. A 22.76-acre undeveloped church-owned parcel that was historically part of the Fletcher Granite Company's quarry holdings is another parcel with excellent development potential.

The western side of the highway interchange, along Groton Road to the Westford town line, received consideration from a developer for rezoning that would permit multifamily housing on the south side and commercial development on the north side. There was considerable neighborhood opposition to this concept. The Planning Board appointed a study committee and the committee recommended that the existing Limited Industrial zoning be extended to Groton Road and that a Continuing Care Community Overlay District be adopted. It was recommended that the south side remain unchanged as Residential C (RC) zoning. The 2019 Fall Town Meeting defeated both zoning articles. In September 2020 the Planning Board approved a 12 duplex subdivision (24 units) for property on the south side.

Route 110/Littleton Road

Littleton Road is a main commercial artery in town, hosting a variety of uses ranging from light industrial businesses to automobile repair; convenience retail to an asphalt plant. It is an area that has seen multiple 40-B affordable housing development proposals, and there is a large manufactured housing (mobile home) park across the street from the main commercial district. Over the past decade, this area has experienced significant development, primarily multi-family housing.

Many of the properties in this area determined to be in disrepair and/or underutilization have been redeveloped. The property at 273 Littleton Road was redeveloped into a new gas station/commercial store. The Chelmsford Housing Authority developed 276 Littleton Road into a Chapter 40B development, consisting of 116 units. Utilizing the CEIOD, the property at 237 Littleton Road was developed into a 8-unit rental building. Recently, 235 Littleton Road was approved as another 8-unit rental building. An 84-unit rental Chapter 40B development was constructed at 50 Hunt Road, which was a former agricultural property.

It should be noted that 241 Littleton Road, zoned roadside commercial, received initial CEIOD applicability for a restaurant with drive-thru, but faced significant concerns from the neighbors and Planning Board. Initially, 50 Hunt Road was the subject of a potential zoning change to commercial and was also viewed unfavorably by the neighborhood and the Planning Board.

Route 110/ Route 3 Shopping District

While there are many opportunities for economic revitalization and redevelopment within the Route 110/ Route 3 shopping district, this area has seen limited changes over the last decade. Infill development on the underutilized parking lot of the Chelmsford mall was one strategy articulated in the 2010 Master Plan. Vacant properties such as the four commercially zoned parcels abutting the mall, the single-family zoned properties located at 280-284 Chelmsford Street, and the former Stop and Shop, which has been occupied by Stop and Shop, were prime candidates for redevelopment. There is superb access to infrastructure, legal frontage, and proximity to thriving residential neighborhoods.

The section of Route 110 (Chelmsford Street) from I-495 to Route 3 has two distinct sides. The even-numbered side of Chelmsford Street is primarily comprised of residential properties and is zoned RB. Whereas, the odd-numbered side is a combination of commercial spaces and is zoned CA, CB, CC and CD. Any future development along the even-numbered side should remain residential.

The town-owned brownfield property (the former site of the Silicon Transistor Corporation) at 25-29 Katrina Road was designated as a priority development site (PDS) by the Interagency Permitting Board under Chapter 43D. Town officials envisioned this area becoming a “premiere

local retail district” which it is free from environmental contamination and serves to buffer residences from future development. The property is now used as a bus storage facility for school buses now that the contamination has been addressed through a brownfields grant.

Outlined on the following pages are the current proposed redevelopment sites, which were updated from the 2010 Master Plan and Map 1 showing the location of the potential redevelopment sites:

Table 3.30: Potential Redevelopment Sites

Location	Map	Block	Lot	Acreage	Zoning District	Land Use Code	Land Use Description
100 Wotton Street	9	6	3	12.53	Limited Industrial (IA)	400	Former Southwell Combing Co. mill. 127,321 sq. ft. consists of one manufacturing tenant with the remainder of the mill being vacant.
540 Groton Road/off	10	22	1	20.9	Limited Industrial (IA)	442V	Vacant developable industrial land
51 Middlesex Street	13	36	1	6.10	Limited Industrial (IA)	400	Occupied mill: Building app. 221,544 sq. ft.
61 Middlesex Street	13	36	3	1.45	Limited Industrial (IA)	401	Occupied mill: Building app. 112,860 sq. ft.
70 Princeton Street	13	36	8	1.28	Limited Industrial (IA)	401	Occupied mill: Building app. 45,594 sq. ft.
107 Princeton Street	19	59	4	0.64	Roadside Commercial (CB)	105	Three-family residential
133 Princeton Street	19	59	9	1.30	Roadside Commercial (CB)	316	Abandoned 16,000 sq. ft. industrial warehouse that is in disrepair
255 Princeton Street	20	74	1	34.00	Residential B (RB)	901	Former UMass Lowell West Campus
10 Technology Drive	27	74	1	3.90	Limited Industrial (IA)	440	40,000 sq. ft. office space potential after environmental constraints. Vacant industrial developable land
152 Stedman Street	32	110	1	30.78	Limited Industrial (IA)	440V	Former Glenview Sand and Gravel. Vacant industrial developable land
110 Drum Hill Road	32	113	4	0.23	Shopping Center (CC)	392V	Single-family residential
6 Wesley Street	32	113	5	0.33	Shopping Center (CC)	340	Office building

Table 3.30 (cont'd): Potential Redevelopment Sites

Location	Map	Block	Lot	Acreage	Zoning District	Land Use Code	Land Use Description
279 Chelmsford Street	52	203	5	0.39	Neighborhood Commercial (CA)	130	Residential vacant land
277 Chelmsford Street	52	203	6	0.22	Neighborhood Commercial (CA)	392V	Undevelopable vacant land
271 Chelmsford Street	52	203	7	0.48	Neighborhood Commercial (CA)	104	Store/Shop
280 Chelmsford Street	52	140	18	0.48	Residential B (RB)	130V	Residential vacant land
34 Turnpike Road	74	328	5	1.10	Limited Industrial (IA)	101	Single-family
36 Turnpike Road	74	328	6	1.23	Limited Industrial (IA)	101	Single-family
163 Billerica Road	74	331	2	2.74	Limited Industrial (IA)	322	Mulch processing plant on 5-acre site. Office building future development option
242 Billerica Road	75	291	52	5.62	Limited Industrial (IA)	101	Industrial land
41 Central Square	84	334	11	0.39	General Commercial (CD)	341	Bank building
Blackmer Street	85	331	3	0.22	Limited Industrial (IA)	442	Industrial vacant land
221 Billerica Road	86	328	5	1.00	Limited Industrial (IA)	101	Single-family residential
199 Billerica Road	86	328	6	0.38	Limited Industrial (IA)	101	Single-family residential
205 Billerica Road	86	328	8	6.70	Limited Industrial (IA)	101	Single-family residential
8 Blackmer Street	86	331	2	0.66	Limited Industrial (IA)	101	Single-family residential
12 Kidder Road	99	403	4	2.45	Limited Industrial (IA)	440	Industrial vacant developable land

Source: Chelmsford Master Plan updated by Evan Belansky.

Issues and Opportunities

The COVID-19 pandemic has had the most significant health and economic impact upon the nation, state, region and Town of Chelmsford in 2020. During the initial period from January 1, 2020 to May 27, 2020, the Town had 309 COVID cases and 38 deaths, compared to the 4,664 COVID cases and 247 deaths in the Greater Lowell region. As shown in Figure 3.3, the unemployment rate for the Town of Chelmsford increased from 2.7% in May 2019 to 13.8% in May 2020, while the Greater Lowell Workforce Development Area saw an increase from 3.1% in May 2019 to 16.6% in May 2020. Chelmsford residents filed 3,860 unemployment claims between March 21, 2020 and May 30, 2020, which represented 9.8% of the unemployment claims (39,249) for the region. Within the Greater Lowell region, the primary industries impacted were Health Care & Social Assistance (18.02%), Accommodation and Food Services (14.52%), Retail Trade (11.20%), Construction (9.91%) and Manufacturing (8.74%). The situation for Chelmsford residents was similar with the following primary industries impacted –

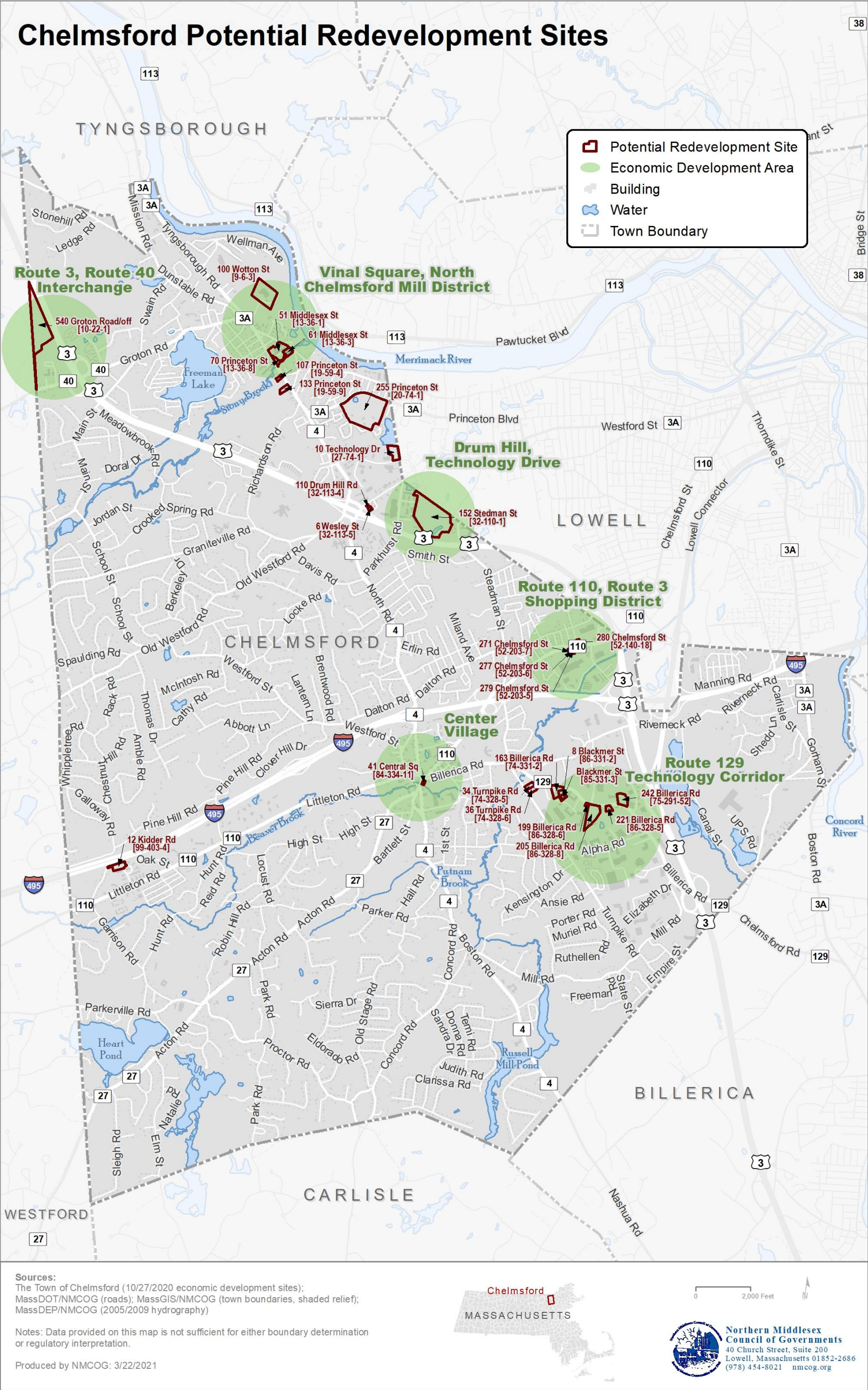
Health Care & Social Assistance (17.93%), Accommodations and Food Services (14.15%), Retail Trade (11.66%), Construction (9.72%) and Professional Scientific and Technical Services (6.42%). The primary identified occupations impacted for Chelmsford and the Greater Lowell residents were Food Preparation and Serving Related, Office and Administrative Support, Management, Sales and Related and Personal Care and Service.

As a result of COVID-19, more people are working from home and there are an increased number of retail and office vacancies. The Town will need to develop a short- to intermediate-range strategy to address the new investment opportunities created by the pandemic until the situation returns to “normal” through the availability of vaccines or other COVID-19 treatments.

The establishment of the Chelmsford Economic Development Commission (EDC) in 2009 provided a focus on economic development initiatives that did not exist previously. Designed to “assist in the recruitment, retention and expansion of businesses in the Town”, the EDC has provided active support to the Town Manager and Community Development Director in the implementation of the town’s economic development policies. With the hiring of the Director of Business Development, the Town provided staff support to the EDC. The EDC has served a critical role in advancing the 2010 Master Plan recommendations, such as the re-zoning efforts, particularly in the Route 129 area, branding and marketing for Route 129 (video and web page) and input on tax classification. Through its advocacy of expedited permitting processes for retail, commercial and industrial development and the completion of the *Chelmsford Business and Permitting Guide* in January 2019, the EDC has encouraged the Town to act upon private development proposals within 180 days consistent with the State’s expedited permitting process guidelines.

Currently, there appears to be limited market demand or interest in commercial or industrial development. There has been no additional commercial redevelopment similar to Skip’s Restaurant on Chelmsford Street, which remains the model redevelopment strategy to enhance a property’s value and use, and, therefore, increase the amount of property taxes and quality of buildings. There are challenges facing the community in developing commercial properties: the neighborhoods have preferred residential development over commercial development; commercial properties are locally-owned and financing is generally limited to local entities; and additional housing is needed to support economic development in the community. Significant challenges face the Route 129 Cross Roads area, such as high vacancy, low rents, limited amenities and large buildings. Although there appears to be interest in the properties, there is difficulty completing the deals. While these issues and COVID-19 present a real challenge to the community, the recommendations outlined in this chapter will provide an economic development strategy in addressing these issues.

Map 3.1. Chelmsford Potential Redevelopment Sites



This page intentionally left blank

The Town has also worked with the Middlesex 3 Coalition and communities along Route 3 – Burlington, Bedford, Billerica and Lowell – to identify barriers to the development of priority development sites, as well as to develop a marketing brand for Route 3 that will benefit the region in attracting private investment. For the most part, the Middlesex 3 Coalition has principally sponsored webinars related to the impacts of COVID-19. The Town needs to maintain and increase its Site Finder Database and update its annual survey of the Chelmsford business community.

The 2010 Master Plan identified the following areas as being suitable for redevelopment: Route 129 corridor (from Riverneck Road to the Billerica town line), Vinal Square, Center Village, the Route 110 corridor between the town center and I-495 and the Drum Hill area in the vicinity of Glenview Sand and Gravel and Drum Hill Road. Town Meeting established several overlay districts since the 2010 Master Plan was completed. On October 21, 2013 Chelmsford Town Meeting approved the Community Enhancement and Investment Overlay District (CEIOD). Approval of the CEIOD provided more flexibility in approving mixed-use redevelopment projects on Chelmsford Street from the Town Center to the Center side of Fletcher Street, Technology Drive and the mill complexes of North Chelmsford. The Village Center Overlay District (VCOD) was approved by Town Meeting on April 28, 2014. On October 24, 2016 the Route 129 Business Overlay District (BAOD) was approved by Town Meeting. The concept of a Mill Reuse Overlay District in North Chelmsford is consistent with the balanced growth philosophy of the 2010 Master Plan and would address the areas of mill properties located within industrial zones.

In 2018, the Chelmsford Board of Selectmen created a Tax Classification Study Committee to gather information to help the Board understand the legislative intent and history of tax classification. The Committee would determine the positive and negative effects of implementing a dual tax rate for Chelmsford and study the use of the split rate in other cities and towns, including a survey of the actual shifts implemented by other cities and towns when first adopting a split rate. The Committee published its report in October 2018, which did not make any specific recommendations, but noted that tax policy is one of three major tools that the Board of Selectmen have to affect the overall economic atmosphere of the town. In November 2018, at the Board of Selectmen's annual tax classification hearing, after twenty years of a single tax rate, the Board voted 3-2 to split the tax rate with a twenty-seven (27) percent shift toward commercial, industrial and personal property (ICP).

Manufacturing continues to play a major role in the Greater Lowell region even though the number of businesses and employees has declined over the past few years. A large portion of the manufacturers in the region utilize sophisticated technologies in the areas of nanotechnology, robotics, sensors, biometrics, electro-optics and lasers according to the Asset Map for the Manufacturing Sector developed by Mt. Auburn Associates on behalf of the Greater Lowell and

Merrimack Valley Workforce Investment Boards and the New Hampshire Office of Workforce Opportunity. The Town of Chelmsford should work with the Greater Lowell MassHire Workforce Board to focus on the employment needs of those sophisticated manufacturing firms that represent the region's economic future. The three emerging technologies identified in this report are nanotechnology, robotics and clean energy.

In assessing the infrastructure system related to sewer, water and telecommunications, the completion of the town-wide sewer system, the availability of water through the three water districts and the telecommunication options in the community place the town at a high level of infrastructure compared to other communities in the region. The major issue facing the community remains the sewer capacity issue and, to a lesser extent, the water capacity issue. The Department of Public Works is in the beginning stages of discussion with the LRWWU and other communities on options to support the need for additional sewer capacity. Based on a report from Weston & Sampson in August 2020, it was estimated that Chelmsford would need an additional 150,000 to 200,000 gpd of ADF. On September 15, 2020 the Sewer Division enacted a one-year limited moratorium on new sewer connections and increases to flows for existing connections. In addition, at the 2020 Fall Town Meeting, there is a request for \$150,000 to conduct a Sewer Capacity Study. In addition, at the 2020 Fall Town Meeting, there is an article to amend the Town Code, Chapter 132 Sewage Disposal, Section 132-2 Connection to public sewer. Additional sewer capacity needs to be obtained through the renegotiation of the contract with the Lowell Regional Wastewater Utility or through an agreement with the Town of Billerica. The town has begun to explore the use of a "sewer bank" to promote more efficient use of the limited sewer and water resources. The water districts believe that there will be sufficient water resources in the future, but conservation initiatives have been started to ensure that the resources will be there. The town will need to work with NMCOG and the other communities in the region to address the need for additional sewer and water capacity on a regional basis.

In continuing to redevelop the Center Village and Vinal Square, the Town should actively pursue state and federal funding to implement critical projects in these areas. Working with NMCOG, the town developed a Master Plan for Vinal Square was completed in 2013. Specific recommendations are outlined to upgrade the area. Based upon the results from the *Chelmsford 2018 Town-Wide Business Survey*, there does not appear to be much support from the business community in establishing a Business Improvement District (BID), which is designed to help the local businesses establish special assessments for supplemental services. While the Town has been successful in obtaining various grants, it still needs to consider applying for financing under the District Improvement Financing (DIF) program to fund public works, infrastructure and development projects through incremental tax revenues from the affected businesses. The Town should determine whether to apply for funds under MassWorks or the Housing Choice Development Grant to improve the physical conditions in these two village centers or Community Development Block Grant (CDBG) funds to address a number of design issues in

these areas. In January 2021, the Commonwealth established the Community One Stop for Growth program, which combined ten development grant programs, including MassWorks, under one consolidated framework. The Town will need to submit an Expression of Interest to be eligible to apply under this program.

Working with the Economic Development Commission, the Chelmsford Business Association and the Greater Lowell Chamber of Commerce, the Town completed the *Chelmsford 2018 Town-Wide Business Survey* to determine the needs of the business community. The Economic Development Commission should work with MassDevelopment and the Massachusetts Alliance for Economic Development (MassEcon) to identify the specific businesses that would address these unmet needs. After these businesses are identified, the Economic Development Commission could utilize the Site Finder Database to recommend specific locations in Chelmsford that would meet the property needs of these businesses.

The 2010 Master Plan identified seven principal commercial and industrial development areas: Center Village/Chelmsford Street, the Route 129 Technology Corridor, Drum Hill/Technology Drive, Vinal Square/North Chelmsford Mill District, Route 3/Route 40 Interchange, Route 110/Littleton Road and Route 110/Route 3 Shopping District. Town Meeting approved the Community Enhancement and Investment Overlay District (CEIOD), the Village Center Overlay District (VCOD) and the Route 129 Business Amenities Overlay District (BAOD) as economic development tools to increase flexibility in approving commercial development projects.

The Center Village/Chelmsford Street area provides extensive redevelopment and mixed-use opportunities. Over the last decade, the Center Village has seen significant improvements consistent with the recommendations in the 2010 Master Plan. The CVS site and Papa Gino's site continue to be underutilized. The former CVS site was developed into a Med Express, but has since closed and remained vacant. The Papa Gino's site remains open despite numerous others being closed over the years. The Old Town Hall on North Street was completely restored and is now known as The Chelmsford Center for the Arts. The Odd Fellow's Building in Central Square is in the process of being permitted for re-use into a 100-seat restaurant on the first floor and eight (8) apartments on the upper floors. In addition, a 32 unit condominium development is also being permitted in the parking area behind the Odd Fellow's building. This development will also include the historic restoration and reuse of the Fiske House for commercial uses. The former industrial property has been redeveloped into a 32- unit condominium development, including the first phase of the Brook Walk along Beaver Brook and an 8.45-acre former Stop and Shop site has been completely redeveloped as retail and restaurants. The Town hopes to transform the area into a "lively, mixed-use village district with strong retail, commercial uses, and housing". The property at 9-13 Acton Road offers potential development opportunities.

The Route 129 Technology Corridor offers the best opportunity for industrial development through the redevelopment of existing complexes. The departure of Kronos served as a “wake-up call” and catalyst and validated the 2010 Master Plan recommendations. A concerted effort was then undertaken to involve a number of community stakeholders to develop datasets to better articulate the challenges facing the Route 129 area. The Town received a site readiness grant for \$100,000 from MassDevelopment in 2016, which resulted in the *CHELMSFORD CROSS ROADS AT ROUTE 129: Repositioning a Suburban Office Park for a New Era* report. This report provided a comprehensive assessment of existing conditions, a market analysis and a series of recommendations that supported the 2010 Master Plan recommendations. The Town has chosen a strategy of using Tax Increment Financing (TIF) to attract new businesses to the empty parcels, while also considering multi-family housing as a critical component. Town Meeting approved the Route 129 Business Amenities Overlay District (BAOD) and the Town received a Housing Choice capital grant to deal with infrastructure issues in the area. As vacant properties are filled, the Town will focus on two sites for a possible new office or commercial construction: a 10-acre undeveloped site and a 5-acre former mulch processing facility. Ultimately, the Town hope to promote the Route 129 Technology Corridor as one of the “premiere corporate destinations in the Merrimack Valley”.

In 2019, the Town received a \$60,000 state Planning Assistance grant to hire a consultant to conduct a real estate market study for the Route 3 highway interchanges at Chelmsford Street, Drum Hill and Route 40 Groton Road. This study will identify demographic, economic and real estate shifts that may influence the future direction of development/redevelopment in these areas. The market study will look at the supply and demand for retail, office, industrial and residential uses to help the Town align planning efforts and infrastructure investments in the future.

The Drum Hill/Technology Drive area is one of the major retail corridors in Chelmsford and was originally conceived as the future home for high tech businesses in Chelmsford. However, the development of the area has mirrored the ups and downs of the regional real estate market and has ultimately taken on a much more diverse character, which includes office buildings, research and development firms, a medical center, and specialized senior housing. Due to the road and infrastructure improvements, this district has approached build-out and has limited redevelopment opportunities. During the last decade, several redevelopment projects have been completed – the self-storage facility at two underutilized parcels on Jean Avenue, the indoor contractor’s condo yard/facility on Wesley Street, the environmental remediation and proper closure of the 30-acre Glenview Sand and Gravel site, the auctioning of the former 30-acre UMass Lowell West Campus, and the development of a 10,000 square foot facility at 21-29 Drum Hill. One of the last development parcels is located in the Limited Industrial zoning district at 10 Technology Drive. There are no redevelopment plans anticipated for the Glenview Sand and Gravel site.

The Vinal Square/North Chelmsford Mill District represents a mixed-use development area with tremendous potential. Based on a recommendation in the 2010 Master Plan, a Master Plan for the Vinal Square/North Chelmsford Mill District was completed in 2013 with assistance from NMCOG. During the past seven years, there have been relatively few changes. The property at 59-65 Princeton Court received approval to construct eighteen (18) new residential units and rehabilitate the existing eighteen (18) units on site. The North Chelmsford Town Hall was renovated and is being used as an active Community Center. The Vinal Square/Mill District of North Chelmsford contains a number of significant economic development opportunities, including the former Southwell Combing Company mill, and the historic mills located at 51 and 61 Middlesex Street and 70 Princeton Street. Solar has been installed at the former Southwell Combing Company mill. The establishment of a Mill Reuse Overlay District in North Chelmsford is worth pursuing since it would protect the neighborhood from the loss of historic buildings, encourage the reuse of these buildings should a vacancy occur and add value to the properties. A District Revitalization program should be considered as part of the revitalization efforts. Many residents and business owners have also advocated for the construction of a commuter rail stop in this district. Adding a stop would bolster perceptions that the district is an ideal location for commuters to live and improve the area as a candidate for transit-oriented development funding. Continue to work with the North Village Master Plan Committee.

The Route 3/Route 40 Interchange area has undeveloped, industrially zoned land adjacent to the Westford border north of Groton Road (Route 40) and adjacent to the Route 3/Route 40 interchange. This area experienced significant changes and attention over the last decade. A 66.37-acre town-owned parcel located on Oak Hill Road was formally conveyed to the Conservation Commission as open space. A 22.76-acre undeveloped church-owned parcel that was historically part of the Fletcher Granite Company's quarry holdings was another potential development site. A proposal for multifamily housing and commercial development along Groton Road to the Westford town line was considered by the Planning Board. The Planning Board appointed a study committee and recommended that the existing Limited Industrial zoning be extended to Groton Road and that a Continuing Care Community Overlay District be adopted. The Fall 2019 Town Meeting defeated both zoning articles, which cancelled the project. In September 2020 the Planning Board approved a twelve (12) duplex subdivision (24 units) for property on the south side. There are additional properties in the area, such as 540 Groton Road, that could be developed for industrial purposes.

The Route 110/Littleton Road area extends from the Center Village to the Westford line. Over the past decade, this area has experienced significant development, primarily multi-family housing. Many of these properties were determined to be in disrepair or underutilized. The property at 273 Littleton Road was redeveloped into a new gas station/commercial store. The Chelmsford Housing Authority developed 276 Littleton Road into a 116-unit Chapter 40B development. The property at 237 Littleton Road was developed into an 8-unit rental building,

utilizing the CEIOD. Another 8-unit rental building was developed at 235 Littleton Road, while an 84-unit Chapter 40B development was approved at 50 Hunt Road.

The Route 110/Route 3 Shopping District has benefited from the Route 3 widening project. Due to its access to both Route 3 and I-495, this area has the potential to attract additional private investment. With the development of the Stop & Shop project at the former Chelmsford Cinema site, there will be increased incentive for businesses to locate in this area. The redevelopment of the town's only Chapter 43D site at 25-29 Katrina Road helped clean up the former Silicon Transistor Corporation property and is being used as a bus storage facility for school buses. Redevelopment opportunities in this area are likely to develop as the economy improves and major private investments are made. The Town should take advantage of these emerging opportunities.

The potential economic redevelopment sites identified in the 2010 Master Plan were updated for this document and were listed in the Economic Development Opportunities in Chelmsford section. A map outlining the location of these parcels was also included. These sites should be focused upon to increase the tax base and provide additional employment opportunities for Chelmsford residents.

RECOMMENDATIONS

3.1 The COVID-19 pandemic has had an incredibly negative impact upon the health and economy of the nation, state, region and Town of Chelmsford. NMCOG received a \$150,000 Technical Assistance grant under the CARES Act from the Economic Development Administration (EDA) to develop an Economic Recovery and Resiliency Plan (ERRP) and to bolster the capacity of the Greater Lowell communities in accessing additional grant funds at the federal and state level. NMCOG will be working closely with its CEDS Committee and local communities to outline strategies to address the negative impacts of the pandemic. Chelmsford town staff and officials should actively participate in the development of the ERRP development and implementation.

3.2 In updating its economic development strategy, the Town of Chelmsford needs to recognize that the traditional industries in the region have been impacted by COVID-19. Given the health risks posed by the pandemic, businesses are adjusting the ways they do business in order to serve their customers. E-commerce has grown significantly over the past seven months and many employees are working from home instead of going into the office. Distribution and fulfillment centers are becoming more commonplace as consumers utilize e-commerce more frequently, while ghost kitchens and dark stores provide an alternative to restaurants. The Town should address these e-commerce opportunities at its next Town Meeting and make these initiatives eligible by right and/or Special Permit within the Zoning Bylaw, as determined by the Planning Board. Distribution and fulfillment centers can be located in all commercial and industrial districts and should be permitted while the pandemic continues to impact the community. More residents are working from home, which has an impact upon the normal transportation and purchasing patterns as well.

3.3 Support the efforts of the Chelmsford Economic Development Commission (EDC) in recruiting, retaining and expanding businesses for the community. With the hiring of the full time Director of Business Development in 2017, the Town has provided additional capacity to support and attract businesses. The EDC should implement the following items:

3.3.1 Establish a business resource team to support all existing businesses, as well as a seamless transition for new business openings. Provide knowledge of local programs and support offerings to include establishing open communication: team members to be Middlesex 3 Coalition, Greater Lowell Chamber of Commerce, Middlesex Community College, UMass Lowell, Chelmsford Public Schools, Chelmsford Business Association, Greater Lowell MassHire Workforce Board, MassDevelopment, MA Office of Business Development, Entrepreneurship Center/Community

Teamwork, Inc., MA Manufacturing Extension Partnership, and Small Business Development Center.

- 3.3.2** Implement a Roundtable Forum in affiliation with a regional partner, such as the Middlesex 3 Coalition, in addressing industry-specific trends, objectives and problem-solving on issues, such as workforce development, real estate needs, municipal resources, forecasting plans and unmet needs.
- 3.3.3** Provide added focus on small business success and discover new ways to support and stabilize the business community to encourage more shopping in local establishments and spending locally for trades and services. Secure programming for incentives, store front interests, business welcoming/ribbon cutting, networking, marketspace, entrepreneurship and pop-up stores. Establish annual or semi-annual educational series related to current business trends, challenges and future planning.
- 3.3.4** Review municipal requirements for all marijuana establishments: retailer, product manufacturer, transporter, research facility and laboratories. Determine which type of marijuana facility would be a good match for the community.
- 3.3.5** Explore the development of a TIF/STA policy to be proactively utilized to promote economic development.
- 3.3.6** Upon completion of the Route 3 Highway Interchange Market Study, determine the next steps for implementation.
- 3.3.7** Nurture entrepreneurship by creating maker spaces, incubators and commercial shared kitchens.
- 3.3.8** Examine mechanisms for increasing small-scale neighborhood business opportunities in strategic locations.

3.4 Build upon the Chelmsford Brand Strategy developed by the EDC in April 2010 by incorporating it within the regional “brand strategy” being developed for the Route 3 corridor from Route 128 to I-495. Utilize the “brand strategy” for the Route 129 Cross Roads area. This strategy will expand the Cross Roads identity using the high-value existing tenants to establish credibility through prominent and prevalent companies with promoting their notable achievements. Endorsements for the “package deal” of technical assistance, regional partnerships, expedited permitting, zoning accommodations, direct municipal team support, and educational resources for technology-driven, high-value industries.

3.5 Provide added focus on small business success and discover new ways to support and stabilize the business community to encourage more shopping in local establishments and spending locally for trades and services. Secure programming for incentives, storefront interests, business welcoming/ribbon cutting,, networking, marketspace, entrepreneurship, and pop-up

stores, Establish annual or semi-annual educational series related to current business trends, challenges and future planning.

3.6 Continue to implement the adopted procedures and processes for expedited permitting to ensure that permitting decisions for industrial, commercial and mixed-use applications are acted upon within the state's 180-day guidelines. Update the *Chelmsford Business and Permitting Guide* as needed and in accordance with the new industries being created as a result of COVID-19.

3.7 Encourage the Planning Board to review the effectiveness of the approved overlay districts and recommend changes to encourage commercial development and stay consistent with the private marketplace. The flexibility of the overlay districts will help to implement the economic development goals and objectives of the Master Plan.

3.8 Explore the establishment of a mixed-use Redevelopment District along Route 110 from the Westford side of Hunt Road to Chamberlain Road. Promote mixed-use redevelopment projects on Chelmsford Street/Route 110 from the Town Center to the Town Center side of Fletcher Street, along Technology Drive and at the mill complexes of North Chelmsford (Mill Reuse Overlay District). Utilize the CEIOD to address properties in disrepair or underutilized. Implement a redevelopment strategy for small-scale neighborhood businesses that will encourage the highest and best use for aging properties that are vacant or being sold. This strategy will help to minimize the impact upon sewer capacity, while increasing tax revenues for the community.

3.9 Work with the Greater Lowell MassHire Workforce Board (GLMWB) to focus on the employment needs of those manufacturing industries with sophisticated technologies in the areas of nanotechnology, robotics, sensors, biometrics, electro-optics, lasers and clean energy. The Chelmsford Business Development Director will provide more direction on the training needs of industry partners, as well as future skill trends.

3.10 Expand the public/private partnership initiated by the EDC by working with the private sector to fill vacant commercial space and redevelop industrial properties. Through the utilization of the Site Finder Database, the Town can provide updated property information for prospective tenants and businesses. Identify available space and provide the information to private developers and investors. Provide the information on the Town's web site so that prospective investors can learn about the opportunities. Review sales trends, lease terms and the types of industries interested in locating in Chelmsford and make adjustments to the Town's outreach strategy.

3.11 Develop strategies to increase the capacity of the sewer and water systems to meet the growing demands of the business community and local residents. Implement the

recommendations in the Weston & Sampson report to address the sewer capacity issues and determine whether additional capacity will be available through the Lowell Regional Wastewater Utility or the Town of Billerica. Receive support from Town Meeting in moving ahead with these recommendations. Develop a Five-Year Plan to address the sewer capacity issues and work with NMCOG, the City of Lowell and the other Greater Lowell communities to collectively address this issue. The economic future of the region depends on resolving this issue.

3.12 Continue to explore funding opportunities under the Business Improvement District (BID), District Improvement Financing (DIF), Housing Choice Development Grant, and Community Development Block Grant (CDBG) programs in order to assist in the revitalization of these town centers. Work with the Center Village and North Village Master Plan Committees. Submit an Expression of Interest to DHCD to be eligible for funding under the Community One Stop for Growth program.

3.13 Based upon the results of the Chelmsford 2018 Town-Wide Business Survey, the EDC, Director of Business Development and the Community Development Director should develop a program to address the identified needs of the business community. There should also be an effort to determine what the commercial needs are in the community. The CEDC, Director of Business Development and Community Development Director could then work with MassDevelopment and the Massachusetts Alliance for Economic Development (MassEcon) to identify specific businesses that would address these needs.

3.14 Continue to focus on the extensive redevelopment and mixed-use opportunities in the Center Village/Chelmsford Street area. Actively pursue federal and state funding to implement critical projects in this area. Continue to use the CEIOD and CVOD to provide zoning flexibility, while maintaining the community character of the Center Village. The property at 9-13 Acton Road offers potential development opportunities, as does the former Mobil gas station and vehicle repair shop property.

3.15 Continue to encourage industrial development in the Route 129 Technology Corridor through the development of vacant parcels and the redevelopment of existing buildings. Utilize the CEIOD and Route 129 BAOD overlays to provide zoning flexibility. Implement the recommendations of the Cross Roads at 129 report. Develop a network of stakeholders within the Cross Roads Technology Park to determine their business needs, learn how the Town can better provide resources and communicate on ways to establish a strong partnership. Implement improvements to promote a cohesive area and business destination through signage, wayfinding measures, directories, connectivity of walking paths and collaborative events. Promote the Route 129 Technology Corridor as one of the “premiere corporate destinations in the Merrimack Valley”.

3.16 Support the extension of commuter rail service from Lowell to Nashua and Manchester and establish a commuter rail station with North Chelmsford, providing that there is proper community input and that adequate traffic mitigation is provided in North Chelmsford and elsewhere. Establish a Mill Reuse Overlay District in North Chelmsford and implement a District Revitalization program as part of the overall revitalization efforts in Vinal Square.

3.17 Build upon the redevelopment opportunities in the Chelmsford Street/Route 110/Route 3 Shopping District. Once the Route 3 Highway Interchange Market Study is completed by Spring 2021, the Town should determine what actions may be considered for implementation and/or further study with a focus on determining what redevelopment opportunities are available in this area. These development projects will attract additional private investment to this area.

3.18 Prioritize the Potential Economic Development Sites for the EDC and Community Development Department to implement.

3.19 Explore opportunities to incentivize private development through the establishment of a redevelopment authority or industrial development finance authority, or by working with the Lowell Development and Financial Corporation (LDFC).

IV. TRANSPORTATION AND CIRCULATION

INTRODUCTION

A multi-modal transportation system is essential to a community's vitality by providing access to housing, employment centers, local services, retail establishments and recreational amenities. A transportation system must safely and efficiently accommodate all its users, including motorists, pedestrians, bicyclists, and public transit riders. Chelmsford's streets, sidewalks, trails and regional transit services exert a significant influence on the health, well-being, and quality of life of its residents. The purpose of the Master Plan is not only to strengthen the town economically, but also to preserve its community character and quality of life.

The Transportation and Circulation section provides an overview of Chelmsford's existing transportation system, presents an assessment of safety and operational issues, and outlines recommendations for addressing identified needs and deficiencies. An assessment of existing conditions was prepared through background research, field reconnaissance, and input provided by town staff. Some of the information used in this analysis is derived from the *Regional Transportation Plan*¹⁰ (RTP) and the *Transportation Improvement Program*¹¹ (TIP) prepared by the Northern Middlesex Council of Governments (NMCOG).

Existing Conditions

The Town of Chelmsford is located in northern Massachusetts west of Billerica and east of Westford. To the north, the Town borders the communities of Lowell

Goal Statement: Improve and enhance the community's established transportation network by promoting alternative transportation modes, expanding public transit options, and implementing traffic improvements and techniques that are directed at alleviating congestion and improving safety.

- *Reduce vehicle use and vehicle miles traveled by accommodating and encouraging alternative modes of transportation, such as public transit, ridesharing, walking and bicycling.*
- *Improve the quality of life in Chelmsford neighborhoods through traffic calming, where feasible and practical.*
- *Maintain and improve the town's transportation infrastructure to reduce long-term reconstruction and replacement costs.*
- *Improve the management of parking to better serve the needs of residents, businesses and visitors.*
- *Create a bicycle and pedestrian friendly transportation network that is safe for people of all ages and abilities.*
- *Improve transportation access and service for seniors and for persons with disabilities.*
- *Ensure that future development projects do not negatively impact existing travel and safety conditions within the community.*

¹⁰ Northern Middlesex Regional Transportation Plan, 2020-2040, Northern Middlesex Council of Governments, October 2019

¹¹ FFY 2020-2024 Transportation Improvement Program, Northern Middlesex Council of Governments, May 2019

and Tyngsborough, and to the south the Town of Carlisle. Chelmsford is directly served by limited access highways

I-495 and Route 3, and is reasonably proximate to I-93 and I-95. State Routes 3A, 110, 129, 27 and 4, along with local roadways, connect Chelmsford to surrounding communities.

State numbered routes and local roadways are the basis of the town's transportation infrastructure and are vital to its economic growth and prosperity. Roadways are classified according to their function and purpose, in a hierarchy based on mobility and access, as outlined in guidelines established by the Federal Highway Administration¹² (FHWA). Functional classification is the process by which streets and highways are grouped into classes according to the character of traffic service that they are intended to provide. There are three general highway functional classifications: arterials, collectors, and local roads. In Massachusetts, arterials can be further classified into interstates, principal arterials and minor arterials, based on the mobility and access provided by the roadway. Table 4.1 below summarizes the number of centerline miles by main functional class for Chelmsford's roadway network.

Table 4.1: Roadway Centerline Miles by Functional Classification

Functional Class	Total Centerline Miles				
	Interstate	Arterial	Collector	Local	Total
	5.39	48.32	8.94	143.88	206.53

Source: MassDOT Roadway Inventory, 2018

Map 4.1 graphically displays the town's roadway network by functional classification.

Interstates Highways and Principal Arterials

Interstate Highways and Principal Arterials form the basic framework for the roadway network. The most mobile of the functional classes, interstates and principal arterials serve the primary function of being a major conduit for interstate travel and commerce. In addition, they help link major geographic and economic regions, and urban centers. This class of roadway carries higher volumes of traffic and often have limited access. Examples in Chelmsford include I-495 and Route 3. There are approximately 5 miles of interstate highway, comprising 2.6% of centerline miles in Chelmsford, as well as approximately 48 miles of arterial roadway, comprising 23.4% of the centerline miles.

A description of the Town's interstate highways and principal arterials is provided below:

- **Interstate 495** extends in a general northeast/southwest direction within the Town of Chelmsford, for approximately 3.4 miles. The highway has three travel lanes in each direction, providing access to Chelmsford at interchanges with State Route 4 (Exit 33) and

¹² Highway Functional Classification Concepts, Criteria and Procedures, Federal Highway Administration, U.S. Department of Transportation, 2013 Edition.

Route 110 (Exit 34). The interchange with US Route 3 is partly in the Town of Chelmsford and partly in the City of Lowell.

- **U.S. Route 3** runs in a general north/south direction for approximately 6.2 miles within Chelmsford and is classified as a principal arterial. The highway has three travel lanes in each direction, providing access to Chelmsford at interchanges with State Route 129 (Exit 29), Drum Hill Square (Exit 32), and Route 40 (Exit 33). The interchange with I-495 is partly in Chelmsford and partly in Lowell.
- **Route 129** is designated as an urban principal arterial east of its interchange with Route 3. Land uses in this area are principally commercial and industrial in character. West of the interchange, the road is classified as a minor arterial.
- **Route 110** is classified as an urban principal arterial from Central Square to the Lowell City line. This section of Route 110 is largely commercial in character. From Central Square to the Westford Town Line, the road is designated as a minor arterial with a mix of both residential and commercial land uses.
- **Route 40** is considered an urban principal arterial from U.S. Route 3 to the Westford line. Development along this section of Route 40 is a mix of residential and industrial uses. From Route 3 east to Vinal Square, the roadway is classified as a minor arterial.
- **Route 27** is classified as an urban principal arterial from the Westford town line to Central Square.

Minor arterials serve to augment principal arterials and provide intracommunity service for trips of moderate length connecting collector roads to principal arterials. Table 4.2 on page [___](#) summarizes the characteristics of the town's arterial roadways.

Map 4.1: Functional Classification of Roadways in Chelmsford

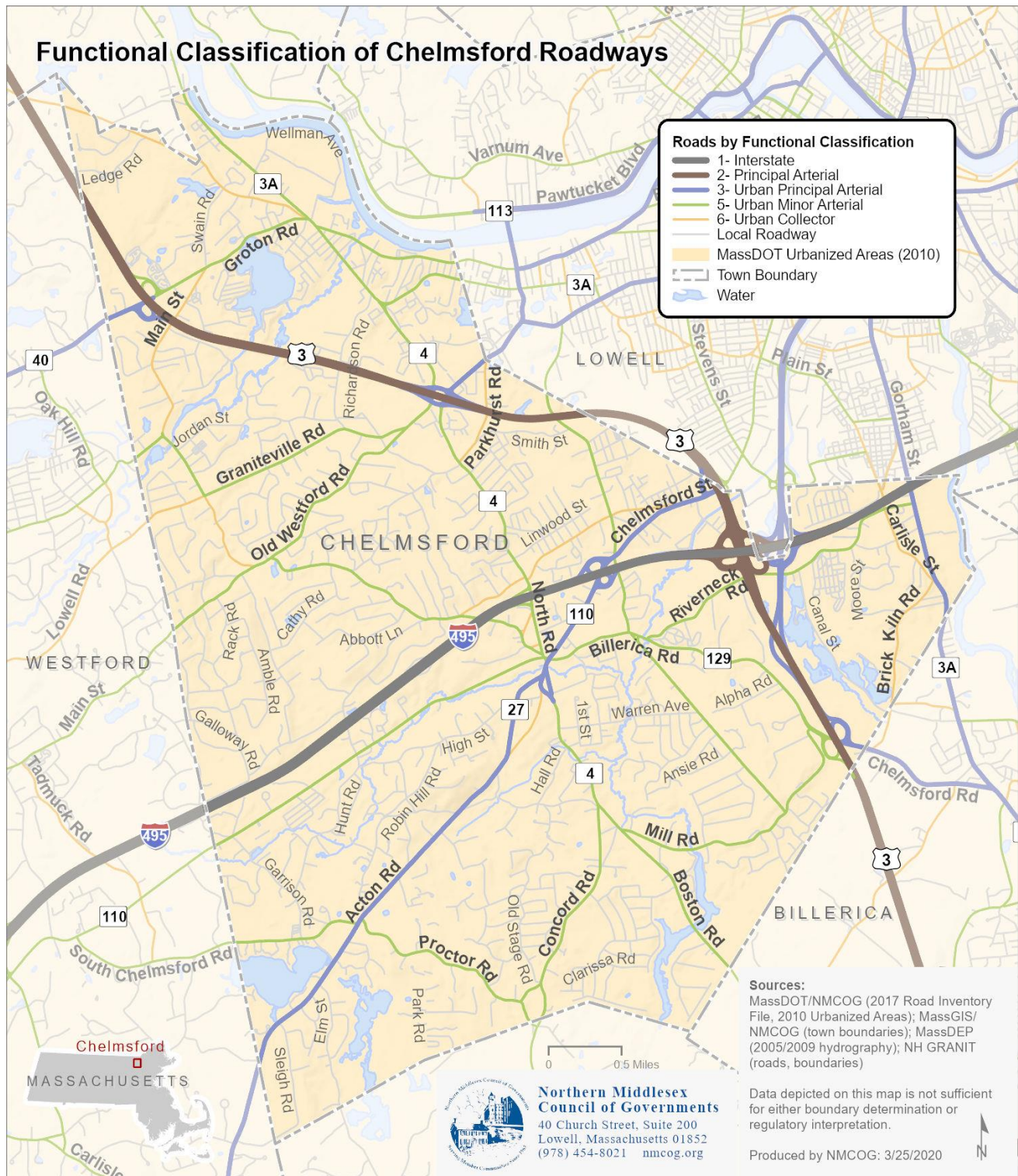


Table 4.2: Summary of Principal Arterial Roadways in the Town of Chelmsford

Roadway	Class	Ownership	Speed Limit (mph)	Roadway Width (ft.)	Shoulder Width (ft.)	Sidewalk
Interstate 495	Principal Arterial	MassDOT	65	36	12	None
Route 3	Principal Arterial	MassDOT	55	36	10	None
Route 4	Minor Arterial	MassDOT and Town	25-40	24-48	0-6	0-6
Route 3A	Principal and Minor Arterial	MassDOT	25-40	24-28	0-8	0-6
Route 129	Principal and Minor Arterial	MassDOT and Town	25-40	22-48	0-2	0-6
Route 110	Principal and Minor Arterial	MassDOT and Town	25-45	22-44	0-10	0-4
Route 40	Principal and Minor Arterial	MassDOT and Town	35	24	0-10	0-4
Route 27	Principal Arterial	Town	25-40	22-24	0-2	0-5
Drum Hill Road	Principal Arterial	MassDOT and Town	30	24	0-4	0-4

Source: MassDOT Roadway Inventory, 2017

Collectors

Collector roads are generally shorter than arterials and serve to gather trips from local roads and distribute them to arterials. In designated urban areas such as Chelmsford, there is no distinction between major and minor collector roads. Collector roads make up 4.3% of all centerline miles in Chelmsford. Table 4.3 below lists the collector roads in Chelmsford.

Table 4.2: Functionally Classified Collector Roads in Chelmsford

Designated Collectors	
Academy Street	Edson Street
Alpine Street	Graniteville Road
Bartlett Street	Main Street
Brick Kiln Road	Parkhurst Road
Carlisle Street	School Street
Dalton Road	Worthen Street
Dunstable Road	

Source: MassDOT Road Inventory File, 2017

Local Roadways

Local roads consist of all roads not defined as arterials or collectors, and provide access to land with little or no through movement. There are 144 miles of local roadway within the Town of Chelmsford, accounting for 70% of the town's roadway mileage.

Unaccepted Streets

The Town has just over 11.42 miles of unaccepted streets, also known as private ways. Private ways are often unaccepted because they do not meet local standards for roadway construction. The current policy is to provide snow plowing, trash pickup and minimum essential maintenance to allow access for public safety operations. The Town does not receive funding through the Chapter 90 program to maintain these roadways.

Jurisdiction

Ownership of roadways is key to identifying the responsible parties for maintaining and improving Chelmsford's transportation network. MassDOT owns 11.2% of the roadway mileage in Chelmsford, including Route 3 and portions of Drum Hill Road. Of the 206.53 centerline miles of roadway in Chelmsford, 83.3% are accepted Town owned roads eligible to receive Chapter 90 funding assistance for maintenance. Table 4.4 below summarizes the ownership status of roadways in Chelmsford.

Table 3.4: Roadway Centerline Miles

Jurisdiction	MassDOT-owned	Town-owned (Accepted)	Town-owned (Unaccepted)	Total
	23.1	172.01	11.42	206.53

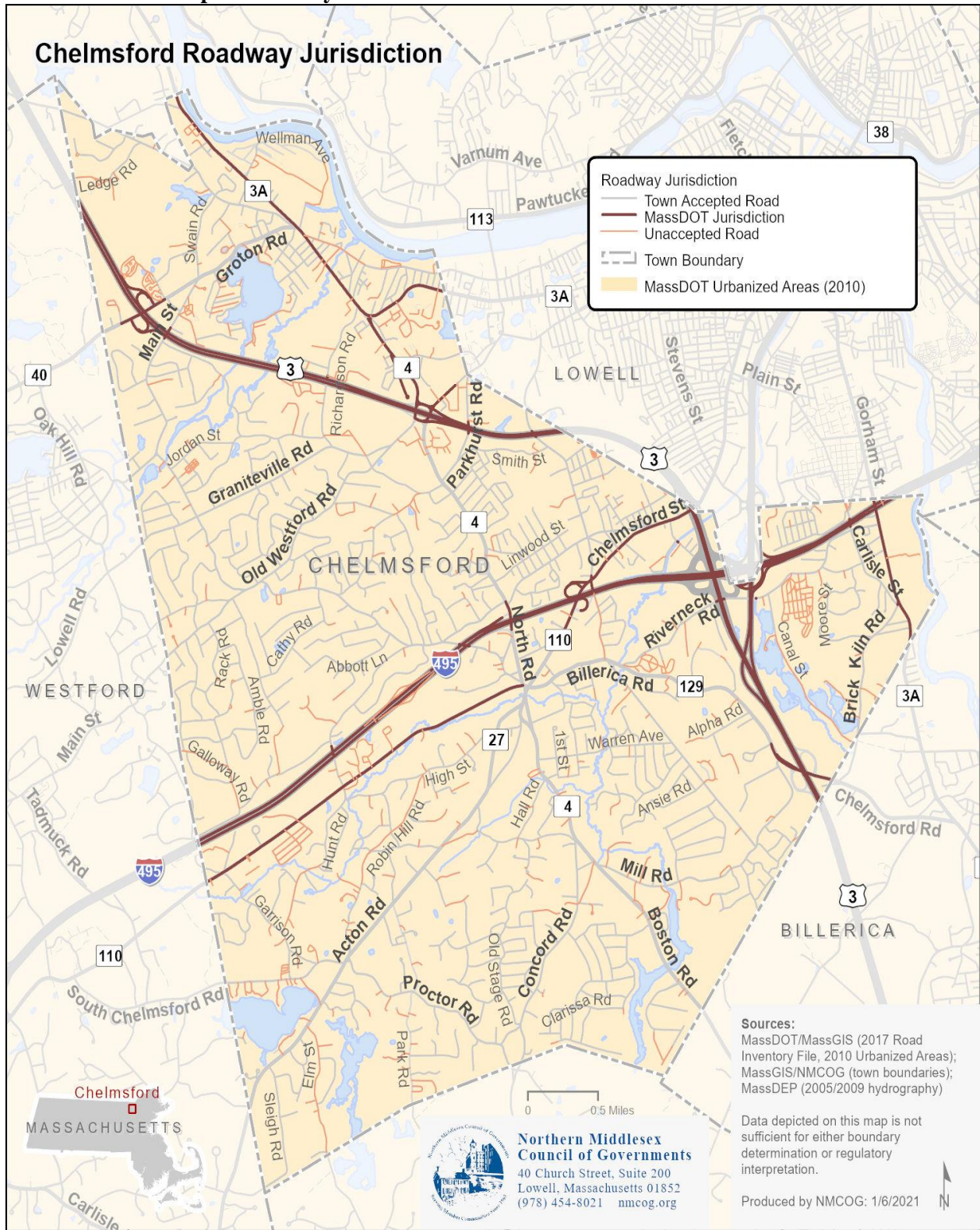
Source: Massachusetts Department of Transportation (MassDOT), Office of Transportation Planning Road Inventory Year End Report (March 2018)

Map 4.2 on the following page illustrates both State-owned and Town-owned roadways, which are further broken down into accepted/unaccepted roadways based on data provided by MassDOT and town staff.

Roadway Maintenance

Efficient utilization of limited transportation resources requires adequate maintenance and preservation of the existing transportation system. Timely and appropriate maintenance is vital given that construction costs rise annually and government agencies find themselves fiercely competing for funding. In addition, overused, poorly maintained, inadequately lit, and badly signed and striped roads pose a safety hazard.

MAP 4.2: Ownership of Roadways in Chelmsford



A sound and thoughtful maintenance program leads to the long-term sustainability of roadway infrastructure, and is comprised of the following activities:

- Winter maintenance
- Preservation (resurfacing and crack filling)
- Pavement markings, signs, safety barriers, etc.
- Pavement rehabilitation (restructuring without upgrading nominal load capacity)
- Pavement upgrading (increasing load capacity, environmental features, and low cost measures)
- Structural maintenance (bridges, tunnels, etc.)
- Peripheral maintenance (embankments, drainage, shoulders, etc.)

The Town's highway department is responsible for the maintenance of all public roads, including snow and ice removal. The department subcontracts roadwork on an as-needed basis. Paved roadways represent one of the largest capital investments in the highway budget. Maintaining the paved surface of a large roadway system involves complex decision-making on how and when to apply surface treatments to best keep the system performing and operating within the funding constraints facing the community.

In 2018, NMCOG staff evaluated 26.0 miles of federal-aid eligible centerline miles of roadway within Chelmsford as part of its regional pavement management program. That data was combined with 2018 MassDOT pavement data for the remainder of the town's federal-aid eligible roadways. The analysis showed that 70% of the federal-aid roadways were in good condition and the remaining 30% were in poor condition, as shown on Map 4.3.

Allocating adequate resources for preventive maintenance, such as crack sealing, can increase the life-cycle for certain roadways, while deferring maintenance can lead to a need for full depth reconstruction, which is far more costly. Pavement preservation and rehabilitation type projects are initiated by local communities or MassDOT, and can be funded with federal aid if located on eligible roads. Roadway reconstruction and maintenance projects follow the same procedures for project initiation and approval as other projects programmed on the TIP.

State funding through the Chapter 90 program can also be utilized for roadway improvement projects. The Chapter 90 Program is funded through the State Transportation Bond Bill and administered by MassDOT. The funds are apportioned by formula based on local accepted roadway mileage, employment and population. The FY 2020 Chapter 90 allocation calculation for the Chelmsford is detailed in Table 4.5.

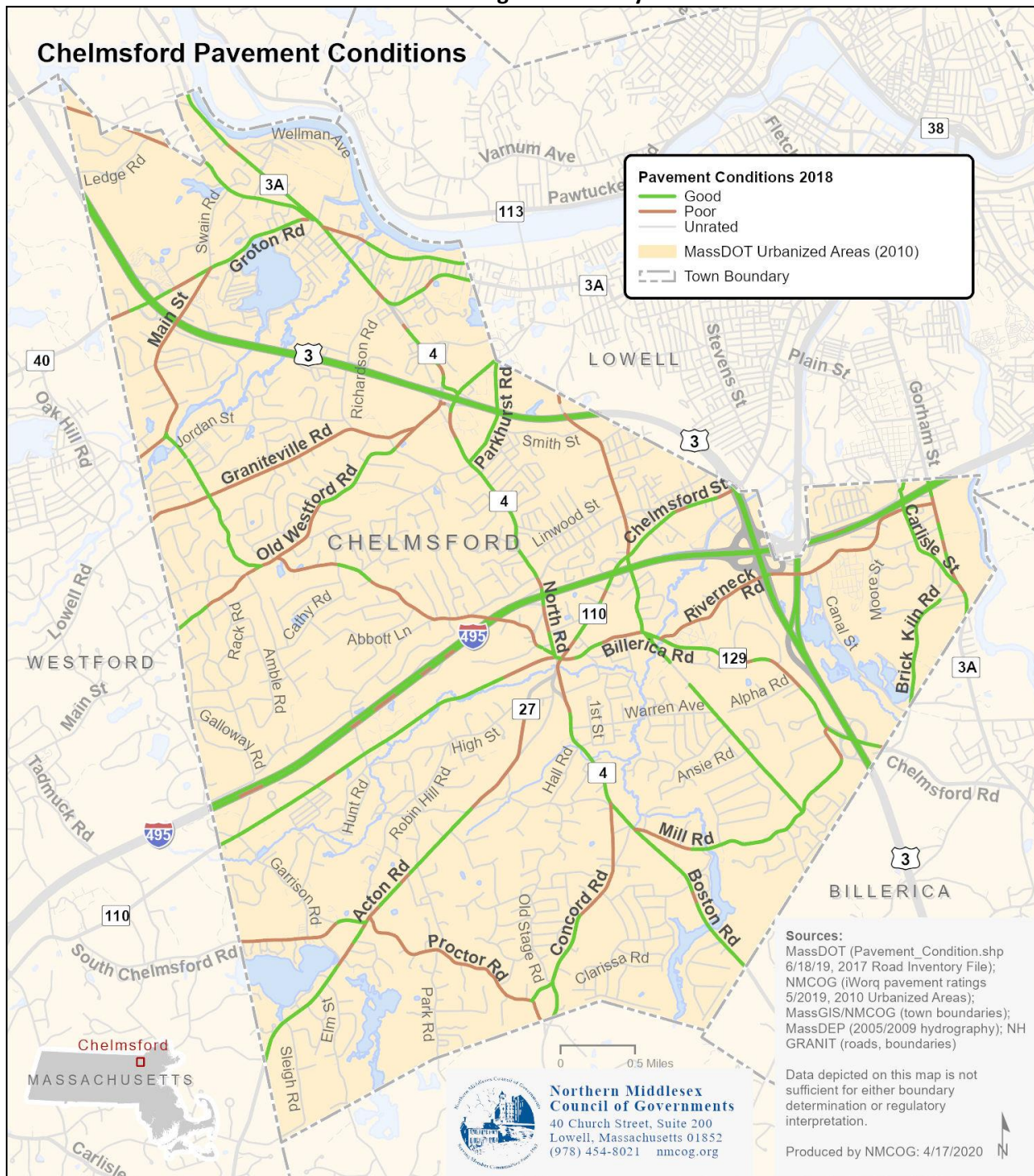
Table 4.4: Chelmsford Chapter 90 Apportionment, FY 2020

MassDOT District	2018 Roadway Miles	2010 Population	2018 Employment	FY 2020 Apportionment
4	172.01	33,802	22,444	\$1,154,685

Source: MassDOT

Chapter 90 funds must be allocated to roadway projects, such as resurfacing and related work, and other incidental work, such as preliminary engineering, State Aid/Consultant Design Agreements, right-of-way acquisition, shoulders, side road approaches, landscaping and tree planting, roadside drainage, structures (including bridges), sidewalks, traffic control, service facilities, and street lighting (excluding operating costs).

MAP 4.3: Pavement Condition of Federal-Aid Eligible Roadways



Bridges

MassDOT uses standards developed by the American Association of State Highway and Transportation Officials (AASHTO) to rate all bridges in Massachusetts based



Picture 4.1: Route 4 Southbound Bridge over Route 3 at Drum Hill Square. Photo Courtesy Google Maps

on their condition. The rating scale runs from 0 to 100, with 100 being the best condition possible. Bridges that score low on the scale are classified as structurally deficient.

A structurally deficient condition indicates a deterioration of significant bridge elements, which may require a restriction in the load capacity of the bridge. It does not necessarily mean that the bridge is unsafe, but indicates that repairs should be made before the condition deteriorates further. There are two structurally deficient bridges in Chelmsford: Lowell Connector over I-495; and Westford Street over I-495 (currently under design for reconstruction). Two recent MassDOT construction projects have addressed structurally deficient bridges. These projects included the Route 4 North over I-495, which is now at full beneficial use, and the Hunt Road Bridge over I-495, which is now complete. Table 4.6 provides information on the condition of bridges within Chelmsford.

Table 4.5: Bridge Structural Condition

Location	Ownership	Functional Class	Year built/rebuilt	MassDOT Inspection Structural Rating ¹	Structural Deficiency
Route 3 South CD over Route 110 (Chelmsford Street)	MassDOT	Freeway/Expressway	2004	75.4	No
Route 3 South over Route 110 (Chelmsford Street)	MassDOT	Freeway/Expressway	2004	78	No
Route 3A (Princeton Street) over Stony Brook	MassDOT	Urban Minor Arterial	1956/2009	91.7	No
Meadowbrook Road over Stony Brook	Town	Urban Local	2001	85.4	No
School Street over Stony Brook	Town	Urban Minor Arterial	1850	66.5	No
Turnpike Road over Meadow Brook	Town	Urban Minor Arterial	1984	76.9	No
Route 3 CD North over Route 110	MassDOT	Freeway/Expressway	2004	93.5	No

Table 4.5: Bridge Structural Condition

Location	Ownership	Functional Class	Year built/rebuilt	MassDOT Inspection Structural Rating¹	Structural Deficiency
Route 3 North over Route 110 (Chelmsford Street)	MassDOT	Freeway/Expressway	2004	78	No
Riverneck Road over Route 3	MassDOT	Urban Minor Arterial	2004	93	No
Steadman Street over Route 3	MassDOT	Urban Minor Arterial	2004	91.8	No
Route 3 South over Parkhurst Road	MassDOT	Freeway/Expressway	2004	83	No
Route 3 North over Parkhurst Road	MassDOT	Freeway/Expressway	2004	83	No
Route 4 North over Route 3	MassDOT	Urban Arterial	2004	99.4	No
Route 4 South over Route 3	MassDOT	Urban Arterial	2004	99.4	No
Meadowbrook Road over Canal	Town	Urban Local	1950	47	No
Route 129 (Billerica Road) over Route 3	MassDOT	Urban Minor Arterial	2004	86.2	No
I-495 North over Route 110 (Chelmsford St)	MassDOT	Freeway/Expressway	1960	52	No
I-495 South over Route 110 (Chelmsford St)	MassDOT	Urban Interstate	1960	52	No
I-495 North over Golden Cove Road	MassDOT	Urban Interstate	1960	80	No
I-495 South over Golden Cove Road	MassDOT	Urban Interstate	1960	84.2	No
I-495 North over bike path	MassDOT	Urban Interstate	1959	71	No
I-495 South over bike path	MassDOT	Urban Interstate	1959	82	No
I-495 North over Meadow Brook	MassDOT	Freeway/Expressway	1959	88.7	No
I-495 South over Meadow Brook	MassDOT	Freeway/Expressway	1959/1975	86.1	No
I-495 South over Route 3	MassDOT	Urban Interstate	2004	87.4	No
I-495 NB over Route 3	MassDOT	Urban Interstate	2004	86.3	No
Lowell Connector over I-495	MassDOT	Freeway/Expressway	1959	78.7	Yes
Lowell Connector South over Route 3	MassDOT	Freeway/Expressway	2004	94.7	No
Lowell Connector North over Riverneck Road	MassDOT	Freeway/Expressway	1959/1984	90	No
Lowell Connector South over Riverneck Road	MassDOT	Freeway/Expressway	1959/1984	91.3	No
Lowell Connector North over I-495 Ramp	MassDOT	Freeway/Expressway	1959/1984	88	No

Table 4.5: Bridge Structural Condition

Location	Ownership	Functional Class	Year built/rebuilt	MassDOT Inspection Structural Rating ¹	Structural Deficiency
Lowell Connector South over I-495 Ramp	MassDOT	Freeway/Expressway	1959/1984	97.8	No
Glen Avenue over Meadow Brook	MassDOT	Urban Local	1959	86	No
Route 3 over Meadow Brook	MassDOT	Freeway/Expressway	1959/2004	70	No
Westford Street over I-495	MassDOT	Urban Minor Arterial	1961	62.4	Yes
Route 4 North over I-495	MassDOT	Urban Minor Arterial	2020		No
Carlisle Street over I-495	MassDOT	Urban Collector	1962	80.9	No
Route 3A (Gorham Street) over I-495	MassDOT	Urban Arterial	1962	61.5	No
Route 3 South over Richardson Road	MassDOT	Freeway/Expressway	2004	83.2	No
Route 3 North over Richardson Road	MassDOT	Freeway/Expressway	2004	83.5	No
Route 3 over Stony Brook	MassDOT	Freeway/Expressway	1959	73.5	No
Route 3 South over B&M Railroad	MassDOT	Freeway/Expressway	2004	85.9	No
Route 3 North over B&M Railroad	MassDOT	Freeway/Expressway	2004	92	No
Route 3 over Moores Canal	MassDOT	Freeway/Expressway	1959	70	No
Route 3 North over Main Street	MassDOT	Freeway/Expressway	2004	86.9	No
Route 3 South over Main Street	MassDOT	Freeway/Expressway	2004	86.9	No
Route 3 North over Route 40 (Groton Road)	MassDOT	Freeway/Expressway	2004	85	No
Route 3 South over Route 40 (Groton Road)	MassDOT	Freeway/Expressway	2004	85	No
Hunt Road over I-495	MassDOT	Urban Local	2017	-	No

Source: MassDOT

Commuting Profile

A community's commuting profile is generally influenced by its location within the region, land use patterns and availability of transportation infrastructure and services. Chelmsford is served by I-495 and Route 3, connecting the town to the Boston metropolitan area and New Hampshire. Table 4.7 provides an overview of the travel modes used by Chelmsford residents to access employment. American Community Survey (ACS) journey to work data collected by the U.S. Census Bureau shows a continued reliance on the single-occupancy vehicle for commuting, with

84.4% of Chelmsford residents driving alone to work. Just over 5% of Chelmsford residents carpooled, while 5.8% worked from home and 2.4% used public transportation.

Table 4.6: Mode Choice for Chelmsford Commuters

Mode Choice	2006-2010 ACS		2014-2018 ACS		Percent Change
	Number	Percent	Number	Percent	
Total:	16,710	100.0%	18,364	100.0%	9.9%
Drove alone	14,337	85.8%	15,499	84.4%	7.5%
Carpooled	1,003	6.0%	973	5.3%	-2.9%
Public transportation (excluding taxicab)	384	2.3%	441	2.4%	14.8%
Bicycle	17	0.1%	55	0.3%	223.5%
Walked	117	0.7%	202	1.1%	72.6%
Taxicab, motorcycle, or other means	134	0.8%	92	0.5%	-31.3%
Worked at home	719	4.3%	1,065	5.8%	48.1%

Source: 2006-2010 and 2014-2018 American Community Survey

According to 2014-2018 ACS data, 18,364 Chelmsford residents commuted to work on a daily basis, an increase of 9.9% from 2006-2010 ACS data, which was likely the result of an improving economy. Ninety-four-point-nine percent (94.9%) of Chelmsford's commuters worked in Massachusetts, with 80.4% working within Middlesex County. Approximately five percent (5.1%) of commuters (937) worked outside of the State, as shown in Table 4.8.

Table 4.7: Workers by Place of Work - State and County Level

Mode Choice	2006-2010 ACS		2014-2018 ACS		Percent Change
	Number	Percent	Number	Percent	
Total Workers	16,710	100.0%	18,364	100.0%	9.9%
Worked in Massachusetts	16,108	96.4%	17,427	94.9%	8.2%
Worked in Middlesex County	13,318	79.7%	14,765	80.4%	10.9%
Worked outside Middlesex County	2,774	16.6%	2,644	14.4%	-4.7%
Worked outside of Massachusetts	602	3.6%	937	5.1%	55.7%

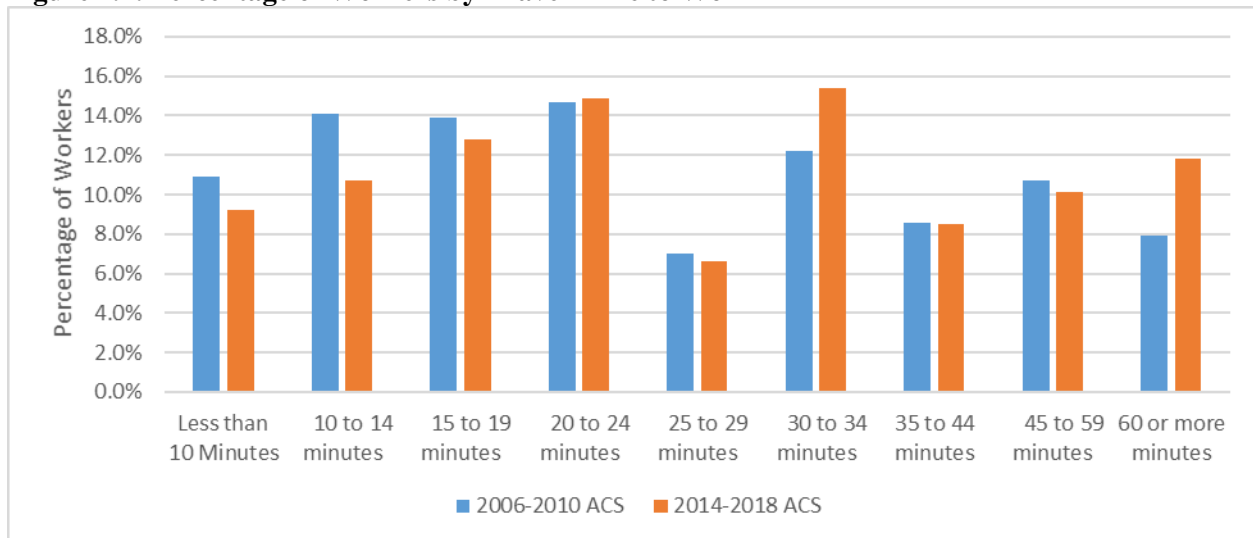
Source: 2006-2010 and 2014-2018 ACS.

According to the 2014-2018 American Community Survey (ACS) data, over 67% of Chelmsford residents commuted more than 20 minutes, as shown in Table 4.9. The average commute took 30 minutes, an increase of 3 minutes from travel times reported in the 2006-2010 ACS. Figure 4.1 graphically displays the travel times to work for Chelmsford residents.

Table 4.8: Travel Time to Work for Chelmsford Residents

Mode Choice	2006-2010 ACS		2014-2018 ACS		Percent Change
	Number	Percent	Number	Percent	
Total Workers Not Working at Home	15,986	100.0%	17,291	100.0%	8.2%
Less than 10 minutes	1,742	10.9%	1,591	9.2%	-8.7%
10 to 14 minutes	2,254	14.1%	1,850	10.7%	-17.9%
15 to 19 minutes	2,222	13.9%	2,213	12.8%	-0.4%
20 to 24 minutes	2,350	14.7%	2,576	14.9%	9.6%
25 to 29 minutes	1,119	7.0%	1,141	6.6%	2.0%
30 to 34 minutes	1,950	12.2%	2,663	15.4%	36.5%
35 to 44 minutes	1,375	8.6%	1,470	8.5%	6.9%
45 to 59 minutes	1,711	10.7%	1,746	10.1%	2.1%
60 or more minutes	1,263	7.9%	2,040	11.8%	61.6%

Source: 2006-2010 and 2014-2018 ACS

Figure 4.1: Percentage of Workers by Travel Time to Work

Traffic Volumes

Traffic volumes are monitored through NMCOC's traffic counting program, MassDOT's counting program, and from traffic impact studies prepared for development projects. Recorded traffic volumes taken between 2009 and 2019 show that the traffic growth within Chelmsford has increased by approximately 0.67% annually. Map 4.4 on the following page shows the location of traffic counts and average daily traffic volumes on Town roadways. Table 4.9 on pages 118 through 125 provides a summary of traffic volumes, traffic growth rates and heavy vehicle percentages at Chelmsford count locations.

Map 4.4: Traffic Volumes on Chelmsford Roadways

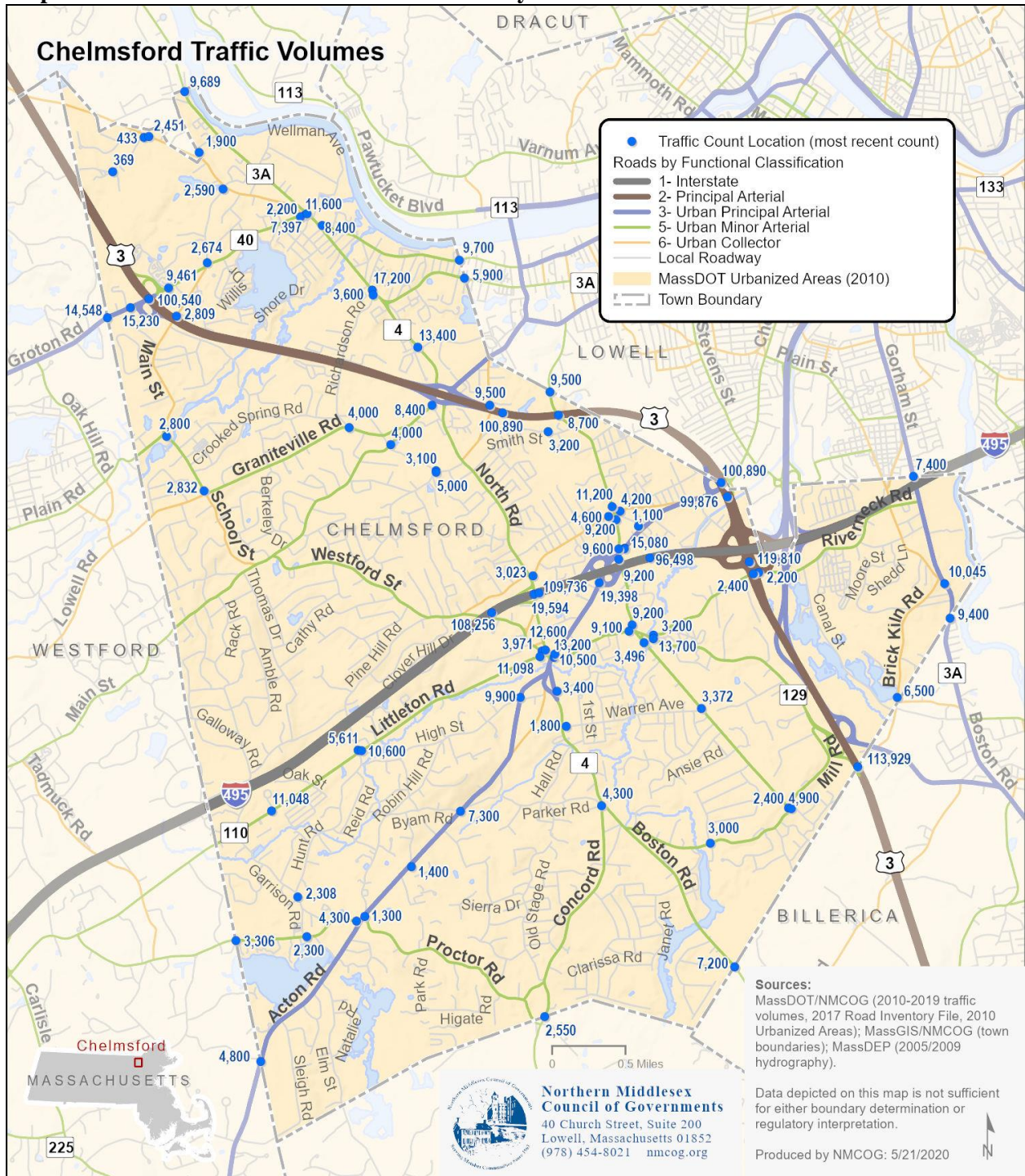


Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Barton Hill Rd N of Rte 27 (Acton Rd)		350												
Brick Kiln Rd N of Alpine St			6,500											
Brick Kiln Rd W of Rte 3A (Boston Rd)		1,800												
Byam Rd E of Locust Ave		370												
Carlisle St W of Rte 3A (Boston Rd)		3,900												
Concord Rd @ Carlisle Town Line	2,600		2,400	2,500		2,400	2,400		2,600	2,700		2,550	-0.17	1.2
Concord Rd S of Rte 4 (Boston Rd)		4,800			4,300									
Dalton Rd E of Steadman St							4,100	4,100	4,200				0.05	1.8
Dalton Rd W of Rte 4 (North Rd)			2,700			2,900			3,000			3,023	1.33	3.1
Dalton Rd W of Steadman St							4,700	4,700	4,600				-0.04	2.1
Davis Rd W of Locke Rd		3,100						3,100						3.1
Dunstable Rd S of Ledge Rd											2,270	2,451		9.8
Dunstable Rd @ Chelmsford/Tyngsborough Town Line	2,400						2,200							1.4
Dunstable Rd W of Rte 40 (Groton Rd)/Vinal Square	2,100	2,200						2,200					0.68	1.7
Garrison Rd N of Parkerville Rd		330												

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Garrison Rd South of Hunt Rd												2,308		
Golden Cove Rd N of Rte 129 (Billerica Rd)	9,100			9,100			8,900	9,400	9,200	9,200			0.14	4.2
Golden Cove Rd S of Rte 110 (Chelmsford St)	9,700							9,400	9,400	9,200			-0.64	4.3
Graniteville Rd S of Richardson Rd		3,800			3,800			3,800			4,000		0.58	2.2
Hunt Rd N of Rte 110 (Littleton Rd)			3,900			4,900						5,611	4.87	5.4
I-495 .5 km S of Rte 4 (North Rd)	111,342	112,075	111,000	108,256									-0.08	11.0
Ledge Rd S of Dunstable Rd										340	427	433	0.55	56.9
Ledge Rd S of Oak Hill Rd										220	312	369	1.35	53.1
Locke Rd S of Davis Rd		2,000						5,000						3.4
Locust Ave N of Byam Rd		610												
Lowell Connector S of Rte I-495	23,814	25,119												
Main St N/E of Rte 3	3,600			3,500								2,809	-2.00	8.6
Maple Rd W of Rte 27 (Acton Rd)	3,500			3,800			3,900			4,300			2.54	2.4
Middlesex St E of Princeton St		8,900			8,400									
Middlesex St @ Lowell/Chelmsford Town Line	11,200			11,700				9,700					-1.91	3.7
Mill Rd E of Raymond Rd		2,500			2,600			3,000					3.33	2.6

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Mill Rd E of Turnpike Rd								4,900						2.7
Mission Rd S of Cross St										1,900				2.3
Moore St W of Brick Kiln Rd		340												
Old Westford Rd N of Davis Rd		4,200						4,000						2.2
Old Westford Rd W of Rte 3			8,400											
Park Rd S of Rte 27 (Acton Rd)		1,400					1,400							1.9
Parker Rd W of Rte 4 (Boston Rd)		950												
Parkerville Rd E of Garrison Rd		2,300				2,300								
Parkerville Rd/S Chelmsford Rd @ Chelmsford/Westford Town Line	2,000		2,100	2,200		2,400	2,200		2,700	2,600		3,306	5.94	6.6
Rte 110 (Littleton Rd) @ Chelmsford/Westford Town Line		7,900			8,300	8,700						10,283	3.02	6.0
Parkhurst Rd E of Rte 3			8,100			9,500								
Pine Hill Rd S of Westford St		2,800												
Quigley Ave S of Middlesex St		210												
Richardson Rd S of Rte 3A (Princeton St)		3,600			3,600									

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Riverneck Rd E of Rte 3				2,200										
Riverneck Rd N of Rte 129 (Billerica Rd)		3,200			3,300		3,100	3,200					0.00	3
Riverneck Rd over Rte 3							2,400							3.2
Rte 110 (Chelmsford St) E of Golden Cove Rd/Steadman St			14,200			14,300								
Rte 110 (Chelmsford St) S of I-495 Ramp	33,600	19,800	19,870	20,747	22,046			19,398					-6.04	
Rte 110 (Littleton Rd) E of Hunt Rd												11,098		
Rte 110 (Littleton Rd) W of Kidder St									9,300			11,048		10.1
Rte 110 (Littleton Rd) W of Rte 4 (North Rd)						9,700						11,098		6
Rte 110 E of Chelmsford Center						13,200								
Rte 129 (Billerica Rd) E of Riverneck Rd		11,700			14,200	14,300	13,400	13,700					2.85	5.5
Rte 129 (Billerica Rd) E of Rte 110 (Chelmsford St)			7,900			10,500								
Rte 129 (Billerica Rd) W of Golden Cove Rd								9,100						6.0
Rte 27 (Acton Rd) N of High St						9,900								
Rte 27 (Acton Rd) S of Byam Rd		7,400				7,300								

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Rte 27 (Acton Rd) @ Chelmsford/Westford Town Line	3,900	3,900	3,928	4,149	4,383				4,800				2.88	1.9
Rte 3 N of I-495							101,474	105,533	110,599	111,484	112,599		2.74	
Rte 3 S of I-495								119,810	125,561	126,565	128,499		2.42	
Rte 3 S of Rte 110 (includes Access Rds)		101,091	99,800	99,687	102,097	99,876							-0.30	
Rte 3 S of Rte 4 (North Rd)						108,548			100,890					
Rte 3 S of Rte 40 (Groton Rd)	91,200	85,900						100,540	105,366	106,209	107,271		1.76	6.0
Rte 3 at Lowell/Chelmsford Town Line	105,500	105,600	86,900	87,147	89,018	108,548			100,890	101,697	102,714		-0.26	
Rte 3 at Billerica/Chelmsford Town Line	102,100			102,910	104,899			113,929					1.66	
Rte 3A (Gorham St) S of Carlisle St (Chelmsford)		8,900						10,045						
Rte 3A (Princeton St) N of Richardson Rd		12,100			17,200									
Rte 3A (Tyngsborough Rd) N of Rte 40 (Groton St)			10,900			11,600								
Rte 3A (Boston Rd/Gorham St) at Billerica/Chelmsford Town Line		8,400			9,400									
Rte 3A (Gorham St) at Chelmsford/Lowell Town											7,400			17.9

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Line														
Rte 3A (Princeton St) at Lowell/Chelmsford Town Line		4,900			5,300		5,000	5,600			5,900		2.27	2.7
Rte 3A (Tyngsborough Rd/Middlesex Rd) at Chelmsford/Tyngsborough Town Line			6,500			7,400			7,400			9,689	5.45	3.9
Rte 4 (Boston Rd) S of Concord/Parker Rd		6,300												
Rte 4 (North Rd) N of Technology Dr	10,500			14,700					13,400				3.45	6.3
Rte 4 (North Rd) N of Westford St						12,600								
Rte 4 (North Rd) over I-495		18,100						19,594						
Rte 40 (Groton Rd) E Rte 3 NB	9,000			8,200				8,100			9,461		0.51	2.1
Rte 4 (Nashua Rd/Boston Rd) at Billerica/Chelmsford Town Line			5,500						7,200					2.5
Rte 40 (Groton Rd) W of Rte 3 NB											14,548	15,230		8.7
Rte 40 (Groton Rd) W of Vinal Square		6,100						6,500			7,397		2.36	3.5
Rte 40 (Groton Rd) at Chelmsford/Westford Town Line	12,700	12,900			13,674	13,506		12,900			14,548		1.46	10.2

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Rte I-495 N of Rte 4 (North Rd)	98,369	97,179	100,454	93,807	99,806			106,729	109,736	109,407	112,303		1.42	
Rte I-495 S of Rte 3	96,841	97,010	107,200	107,741	109,853	96,498	94,086	99,825	107,611	107,288	114,002		1.77	
School St N of Graniteville Rd						2,832								1.0
School St S of Main St									2,800					2.1
Smith St W of Steadman St								3,200						1.7
Steadman St N of Dalton Rd							10,900	10,500	11,200				0.06	3.4
Steadman St N of Rte 110 (Chelmsford St)			8,600			9,600								
Steadman St over Rte 3							8,700							3.2
Steadman St S of Dalton Rd							8,300	8,700	9,200				3.61	3.5
Stedman St at Lowell/Chelmsford Town Line		8,700						9,000	9,500					3.4
Subway Ave N of Rte 110 (Chelmsford St)					1,000			1,200	1,100				0.45	1
Summer St E of Rte 4 (Boston Rd)						3,400								
Swain Rd N of Rte 40 (Groton Rd)											2,400	2,674		9.6
Swain Rd S of Dunstable Rd										2,600	2,400	2,590	-0.01	8.7
Turnpike Rd N of Mill Rd		2,400			2,400			2,400					0.00	1.6
Turnpike Rd N of Warren Ave										3,372				

Table 4.9: Average Daily Traffic Volumes in Chelmsford

Location	Average Daily Traffic (ADT)												Annual Growth Rate	% Heavy Vehicles (Most Recent Count)
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Turnpike Rd S of Rte 129 (Billerica Rd)			2,800			3,200		3,100	2,900			3,496	2.24	4.9
Warren Ave E (N) of Rte 4 (Boston Rd)	1,800			1,800										
Westford St N of Rte 110 (Littleton Rd)		3,100			2,900			3,500			3,971		3.12	
Westford St W of Pine Hill Rd		4,700												
Wotton St N of Vinal Square (Rte 3A Princeton St)		420												

Transportation Safety

The Chelmsford Police Department provides crash records to the Registry of Motor Vehicles on an ongoing basis. MassDOT and NMCOG maintain a database of all crash data reported to the RMV. Table 4.11 provides a summary of the total number of crashes that occurred in Chelmsford between 2015 and 2017, which reflects the most recent complete data available. Of the 2,155 total crashes reported between 2015 and 2017, 1,803 (83.7%) involved property damage only, and 347 (19.2%) involved injuries. Five fatal crashes were reported over the same period. Locations of the fatal crashes include two on I-495, one on Route 3 north near exit 31, one at the Route 3 SB ramp at Route 110, and one in Drum Hill Square.

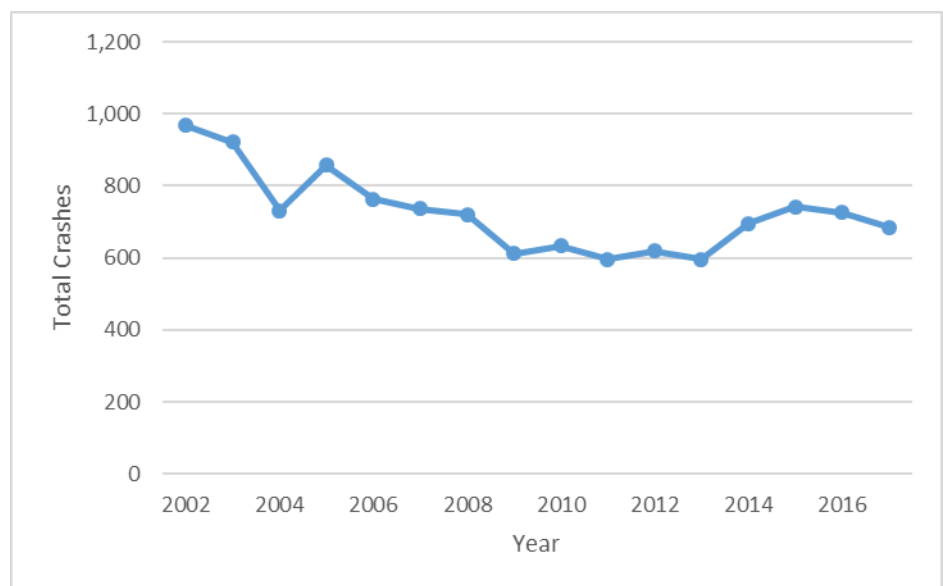
Table 4.10: Chelmsford Crash Summary (2015-2017)

Year	Total Crashes	Property Damage Only Crashes	Injury Crashes	Fatal Crashes
2015	742	616	125	1
2016	727	604	120	3
2017	686	583	102	1

Source: MassDOT Crash Data Record System

Figure 4.2 shows reported Chelmsford crash data trends between 2002¹³ and 2017. The data shows a decrease from a high of 968 crashes in 2002 to 597 in 2011. However, the latest data shows an increase from the 2011 number, though not returning to the highs of 2002 and 2003. The last three reported years appear to trend downward.

Figure 4.1: Reported Crashes in Chelmsford 2002 to 2017



NMCOG staff analyzes crash data for key intersections in Chelmsford each year to identify locations with potential safety concerns. Three years of data are examined in order to minimize annual variations that can be created by construction, road closures, or various factors at or near each location. The equivalent property damage only (EPDO) method is used to compare

¹³ 2002 was the first year Massachusetts began using the current crash data reporting system, requiring local police to send reports to the RMV. Prior to 2002, the RMV used an Accident Records System for reporting purposes.

locations in town. In this method, each crash reported is assigned a numeric value based on the severity of the crash. Property damage only crashes are assigned one (1) point, injury crashes are assigned five (5) points, and fatal crashes are assigned ten (10) points. The points assigned for each crash are then added to determine the intersection's EPDO value. Table 4.12 below summarizes crash data for key intersections for years 2015-2017. Intersection level analysis of crash data is currently available only through 2017.

Table 4.11: Crash Summary at Key intersections in the Town of Chelmsford (2015-2017)

Intersection	Intersection Control	Total Crashes	Property Damage Only Crashes	Injury Crashes	Fatal Crashes	EPDO
Rte 110 (Chelmsford St) at Stedman St	Traffic Signal	25	11	14	0	81
Drum Hill Rd at Parkhurst Rd	Traffic Signal	40	30	10	0	80
Rte 3A (Princeton St/ Tyngsborough Rd) at Rte 40 (Groton Rd)	Traffic Signal	18	8	10	0	58
Rte 110 (Chelmsford St)/Rte 4 (Boston Rd) at Rte 129 (Billerica Rd)	Traffic Signal	20	13	7	0	48
Rte 4 (Boston Rd) at Summer St	Stop	18	11	7	0	46
Route 4 (North Rd) at Rte 110 (Littleton Rd)	Traffic Signal	16	10	6	0	40
Rte 3A (Gorham St) at Carlisle/Brick Kiln Rd	Stop	13	7	6	0	37
Rte 4 (North Rd) at Rte 3A (Princeton St)	Traffic Signal	12	7	5	0	32
Rte 4 (North Rd) at Technology Dr	Traffic Signal	10	5	5	0	30
Rte 3A (Princeton St) at Middlesex St	Stop	11	8	3	0	23
Rte 129 (Billerica Rd) at Alpha Dr	Stop	7	3	4	0	23
Rte 4 (North Rd) at Fletcher St	Stop	12	10	2	0	20

Source: MassDOT Database with NMCOG Crash Analysis

High crash locations identified within Chelmsford include the intersections at Route 110 at Stedman Street, Drum Hill Road at Parkhurst Road, Route 3A at Route 40, and Route 110 / Route 4 at Route 129. These high crash intersections are eligible for Federal Highway Safety Improvement Program (HSIP) funding to assist with the construction of safety related improvements.

Although three years of crash data is used to analyze safety trends for motor vehicle crashes, longer-term data is often needed to determine trends in pedestrian and bicycle crashes. A five-year review (2013-2017) of crashes involving vehicles and pedestrians or bicyclists has been undertaken, in order to identify locations where bicycle and pedestrian safety may be an issue. Of the 3,446 reported crashes in Chelmsford between 2013 and 2017, fifteen (15) involved bicyclists (0.4% of all crashes) and thirty-seven (37) involved pedestrians (1.1% of all crashes), as shown in Table 4.13.

More than seventy-three percent (73%) of reported bicycle-involved crashes resulted in injuries between 2013 and 2017. Six (6) of the 15 incidents occurred at intersections (40.0%). Crash reporting showed that three (3) of the six (6) incidents occurred at signalized locations, despite signalized intersections generally allowing for a more orderly movement of traffic for both vehicles and bicycles.

Table 4.12: Chelmsford Bicycle and Pedestrian Crash Summary, 2013-2017

	Crashes	Percentage
Total Crashes in Chelmsford	3,446	NA
Crashes involving bicycles	15	(0.4% of all crashes)
Injury crashes	11	73.3
Crashes at intersections	6	40.0
Crashes at signalized intersections	3	50.0
Crashes at unsignalized intersections	3	50.0
Crashes involving pedestrians	37	(1.1% of all crashes)
Injury crashes	28	75.7
Crashes at intersections	12	32.4
Crashes at signalized intersections	7	58.3
Crashes at unsignalized intersections	5	41.7

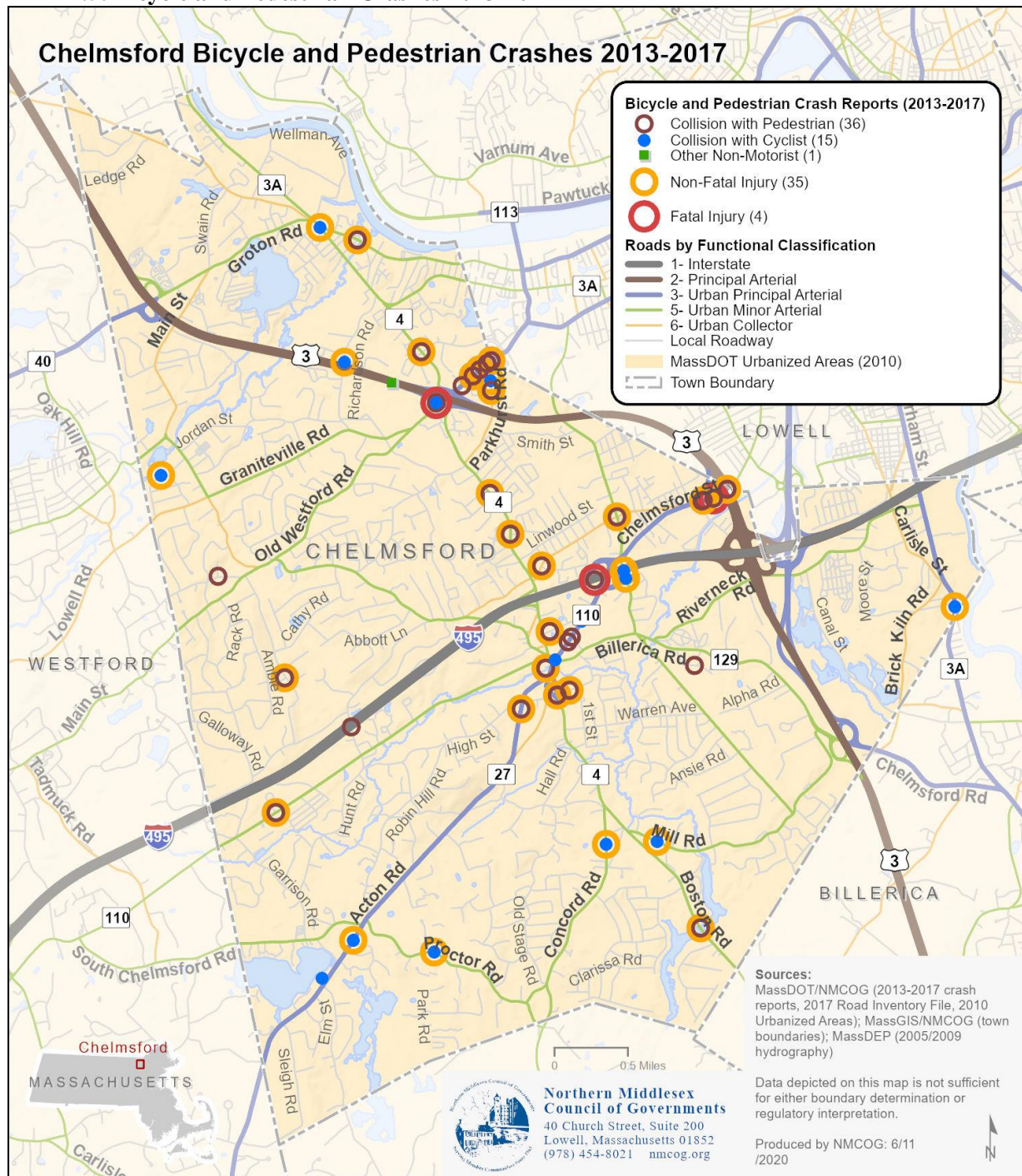
**Includes other non-motorists (wheelchairs, etc.)*

Source: MassDOT database with NMCOG analysis

Pedestrian-involved crashes are similar to bicycle-related incidents in that injuries often occur when the non-motorized users interact with a moving motorized vehicle. Of the 37 crashes involving vehicles and pedestrians, 28 involved injuries (75.7%). Approximately thirty-two percent (32.4%) of all pedestrian crashes during this period occurred at intersections, while more than half (58.3%) of intersection pedestrian crashes took place at signalized intersections. The fatal pedestrian crashes occurred on Route 3 SB ramp at Route 110, the Drum Hill Square and on I-495 NB near Exit 34 (Route 110). There were no reported bicycle related fatal crashes.

Map 4.5 shows the locations of all crashes reported to involve vehicles and pedestrians or bicyclists from 2013-2017. The map shows distinct areas along the arterial roadways, particularly along Drum Hill Road and Route 4, where there are crash clusters. Chelmsford Center, with its complex street system intersected by the Bruce Freeman Rail Trail, is an additional hotspot.

MAP 4.5: Bicycle and Pedestrian Crashes 2013-2017



The Chelmsford Traffic Safety Committee

In 2019, the Select Board held a Town wide traffic forum to gather input from residents on transportation issues in the community. Several hundred comments were received during the forum, and as a result, the Town Manager established a Traffic Safety Committee. The purpose of the Committee is to serve as the official forum in addressing citizen and Board concerns and

issues through a formalized process. The Committee reports to the Select Board given that the Board serves as the road commissioners in town. The Committee address issues such as speed regulations, truck exclusions, stop signs and other transportation items that may require Select Board policymaking. The Traffic Safety Committee is comprised of the Town Manager, Assistant Town Manager, representatives from the Select Board, the Police Chief, the Fire Chief, and the Department of Public Works Director and Assistant Director. Recent Committee activities include:

- Monitoring of heavy vehicle traffic on Ledge Road, Dunstable Road and Swain Road;
- Discussions on improving traffic flow at Littleton Road at Central Square; and
- Analyzing recommendations to improve traffic flow on North Road approaching the Common, by restricting Westford Street access to North Road and redirecting traffic to Academy Street.

Role of the Chelmsford Police Department in Transportation Safety

The Chelmsford Police Department plays a critical role in transportation safety. Below is information provided by the Department relative to its recent work in the areas of traffic management and enforcement:

- The Chelmsford Police Department has two officers dedicated to traffic enforcement on a full time basis;
- The Department deploys moveable illuminated Speed Alert radar boards throughout Town to assist in traffic calming and to conduct traffic studies;
- Daily truck traffic enforcement is conducted in the Dunstable Road, Ledge Road, Main Street, Swain Road and Groton Road areas;
- The Department collaborates with the Massachusetts State Police on truck enforcement in town;
- On a daily basis, the Department analyzes traffic data and public input, and deploys department resources in order to address traffic safety issues in identified areas;
- The Department uses data analysis to identify high motor vehicle accident locations for increased enforcement and possible roadway safety enhancement;
- The Department utilizes social media to notify the public of road construction and other town events;
- The Department has utilized grants to enhance traffic and pedestrian safety;
- The Department uses See Click Fix and several other applications to receive public input on various traffic issues in the community;
- The Department recently made several recommendations for flashing pedestrian crosswalks, illuminated stop signs (Graniteville at School), permanent fixed mounted radar boards (Main Street), and additional traffic signals throughout the Town; and

- Chief Spinney participates in the Town Traffic Safety Committee with the Town Manager, Assistant Town Manager, DPW and Select Board to address traffic safety issues throughout the community.

Public Transportation

Chelmsford lies within the Lowell Regional Transit Authority (LRTA) service area. The LRTA is one of sixteen regional transit authorities across the Commonwealth of Massachusetts dedicated to the mission of increasing the use of mass transit on a regional basis. In addition to Chelmsford, the LRTA service area includes Acton, Billerica, Carlisle, Dracut, Dunstable, Groton, Lowell, Maynard, Pepperell, Tewksbury, Townsend, Tyngsborough and Westford. The LRTA provides both fixed route bus service and paratransit service. Chelmsford is also included in the Massachusetts Bay Transportation Authority (MBTA) assessment area, as the Town is contiguous to two communities served by MBTA commuter rail service (Billerica and Lowell).

Commuter Rail

The MBTA operates commuter rail between the Gallagher Intermodal Transportation Center in Lowell and North Station in Boston. The service consists of twenty-two daily inbound trains operating between 5:35 A.M and 12:10 A.M. Headways are 30 minutes during the peak travel periods, and approximately hourly during other times of the day. In addition to Lowell, the train stops at North Billerica, Wilmington, Anderson, Mishawum, Winchester, Wedgemere and Medford. Weekend and holiday commuter rail service consists of eight daily round trips between Lowell and Boston.

Commuter rail daily ridership from Lowell increased from 655 inbound passengers in March 1975 to 1,522 inbound passengers in March 2018. Similarly, the daily rail ridership from the North Billerica Station increased from 185 inbound passengers in March 1975 to 911 in March 2018. The most recent commuter rail ridership statistics indicate steady growth in the weekend boarding numbers, with 2,007 Saturday passenger boardings and 1,383 Sunday passenger boardings in Lowell, as well as 154 weekend passenger boardings at the North Billerica Station.

Proposed New Hampshire Capital Corridor Commuter Rail Extension

In March 1999, the Nashua Regional Planning Commission (NRPC) commissioned a study to examine the feasibility of extending commuter rail service on the MBTA's Lowell line to the southern New Hampshire region. This study focused on an incremental approach to restoring service along a 30.4-mile section of the former B&M New Hampshire mainline rail corridor between Lowell and Manchester, NH. The last regularly scheduled commuter rail service to Nashua and Manchester was operated in June 1967. A 13-month demonstration project offered a limited schedule of service in 1980 and 1981. The former double track mainline corridor has been reduced to a single-track route with passing sidings, except for a 3.5-mile segment between Lowell Station and Chelmsford Wye.

As proposed, rail service would connect southern and central New Hampshire locations with the current terminus of MBTA operations in Lowell and with the most northerly terminus located in Concord, NH. Early in 2013, the New Hampshire Department of Transportation (NHDOT), working in concert with Massachusetts, completed the Capitol Corridor Alternatives Analysis with support and funding from the Federal Railroad Administration (FRA) and Federal Transit Administration (FTA). The Study evaluated rail and bus options for improving connectivity in the corridor by leveraging existing transportation infrastructure and integrating transportation and land use planning.

The study results indicated extensive positive economic development impacts of expanding passenger rail including new jobs, commercial and residential real estate growth, and millions of dollars in reinvested worker earnings. According to the analysis, the Manchester Regional Rail alternative serving two stations in Nashua, one in downtown Manchester and one at the Manchester-Boston Regional Airport, would offer the greatest economic benefit with moderate construction investment. This alternative would draw an average of 668,000 weekday riders annually.

In 2001, the Town of Chelmsford held a public meeting to gauge the level of support for constructing a new commuter rail station in North Chelmsford should New Hampshire decide to extend service from Lowell. The Chelmsford Board of Selectmen voted to pursue the development of a new station in the North Chelmsford area if the project moves forward.

The MBTA and CTPS completed a feasibility study in 2002 that identified two preferred locations for such a station and assessed the potential demand for each location. The locations include the North Chelmsford Auto Parts site north of Vinal Square and the industrial complex at the end of Wotton Street. The cost of construction was estimated at \$3.7 million for a 400-car lot and \$4.9 million for a 725-car lot. This issue was revisited when the town completed the previous Master Plan in 2010, which ultimately recommended that the Town continue to participate in the planning for the project, assuming that the traffic impacts of a new commuter rail station could be successfully mitigated. A traffic study performed by NMCOG in 2013 evaluated the impacts of a commuter rail station on the Wotton Street site and outlined the traffic mitigation measures that would be needed should the project go forward.

In 2014, the NHDOT released a detailed analysis of proposed options for bringing rail to the NH Capitol Corridor. The preferred first step would be to extend the existing Boston-Lowell commuter rail line to Nashua and Manchester. A future project would eventually extend the line to Concord, NH. The Manchester Regional Commuter Rail line, as it is now known, would run eight (8) round trips between Manchester and Boston and seventeen (17) to Nashua. The total cost estimate for the project in 2014 was \$246 million. The scope of the project would include replacing the tracks, building sidings, construction of stations and crossings, and upgrading bridges. Construction is expected to take four years. Four years ago, the MBTA was willing to provide the train cars and a locomotive, and waive the fees for the track rights given the benefits

to traffic on both the Route 3 and I-93 corridors, and the traffic reduction would help also lower greenhouse gas emissions by 25 percent.

The next step for the rail extension project is the completion of the project development and engineering phases, which include the environmental assessment, engineering plans, the creation of a detailed financial plan, and drafting potential third-party agreements with the MBTA. This work would be funded by the State of New Hampshire using FTA funds.

The City of Nashua has been very actively pursuing passenger rail for many years. In addition to advocating for the NH Capitol Corridor Rail project, the City has been in talks with the Boston Surface Railroad Company that is purposing to run a train from Bedford, NH, at the Manchester Airport to Worcester, MA, and Providence, RI. Commuters would be able to transfer at the Lowell rail station to the Boston line.

Fixed Route Bus Service

The LRTA operates eighteen fixed bus routes in five communities within its service area (Lowell, Billerica, Chelmsford, Dracut, Tewksbury, Tyngsborough and Westford), as well as in five communities beyond the service area (Andover, Bedford, Burlington, Littleton and Wilmington). All of the LRTA bus routes originate at the Gallagher Intermodal Transportation Center in Lowell, providing a direct link to the MBTA commuter rail station. Bus service is available Monday through Friday from approximately 6:00 A.M. to 8:30 P.M., and on Saturdays from 7:30 A.M. to 6:00 P.M. There is a Saturday service level operated on the following five holidays: Martin Luther King Day, President's Day, Patriot's Day, Columbus Day and Veterans' Day. A one-year pilot Sunday service was added in June 2019 and operates from approximately 10:00 A.M. to 6:00 P.M.

The full price fare for a ride on a fixed route bus is \$1.25 in-town and \$1.85 between two or more communities. For those over the age of 60 or for individuals with a disability, the fare is 60 cents and 90 cents respectively. A transfer fare of 25 cents is charged for in-town connections at the Gallagher Transportation Center, while 50 cents is charged for transfers between communities. \$44 Adult and \$25 Student, Senior and Disability monthly passes are also available for frequent riders. Table 4.14 outlines the characteristics of the three bus routes that operate within Chelmsford, while Map 5 shows the fixed routes and the boundaries of the ADA service area.

Table 4.13: LRTA Fixed Route Service within Chelmsford

Route Number	Route Name	Daily Round-Trips		Average Daily Ridership	
		Weekday	Sat. – Sun.	Weekday	Sat. – Sun.
05	Westford Street	30	11 - 8	750	120 - 76
13	Billerica	13	10 - 6	260	120 - 45
14	Burlington Mall	14	10 - 7	480	260 - 120
15	Chelmsford/Westford	10	7 - 5	225	85 - 55
16	Chelmsford Center	12	11 – (Combined w/#15)	350	70 - NA
17	North Chelmsford	14	11 - NA	350	70 - NA

Source: Lowell Regional Transit Authority, National Transit Database reporting

Chelmsford Fixed Route Bus Service

The LRTA provides five fixed bus routes within Chelmsford as described in detail below:

The #05, Westford Street Bus enters Chelmsford from Westford Street in Lowell, connecting with the Lowell General Occupational Health Center on Technology Drive and the Drum Hill Plaza. The service operates from 6:30 AM to 8:36 PM, with thirty (30) inbound and outbound runs on weekdays. Saturday service is comprised of eleven (11) inbound and outbound runs operating from 7:45 AM to 6:15 PM. The Sunday pilot service includes eight (8) inbound and nine (9) outbound runs operating from 10:00 AM to 6:00 PM. The average daily ridership is 655 trips on weekdays, 144 trips Saturdays and 85 trips on Sundays.

The #13, Billerica Bus enters Chelmsford from Route 3A/Gorham Street in Lowell, and continues through Chelmsford on Route 3A to Boston Road in Billerica. The service operates from 6:30 AM to 7:30 PM, with thirteen (13) inbound and outbound runs on weekdays. Saturday service is comprised of ten (10) round trips from 7:30 AM to 6:00 PM. Sunday service offers six (6) round trips from 9:00 AM to 5:45 PM. The average daily ridership is 260 trips on weekdays, 120 trips on Saturdays and 45 on Sundays.

The #14, Burlington Mall/Lahey Clinic Bus enters Chelmsford from Boston Road in Lowell, and continues onto Brick Kiln Road. Connecting with the UPS distribution facility, the 14 bus route then turns left onto the Route 129/ Chelmsford Road in Billerica. The service operates from 6:00 AM to 8:00 PM, with fourteen (14) inbound and outbound runs on weekdays. Saturday service is comprised of ten (10) round trip runs from 8:00 AM to 7:00 PM; and Sunday service offers seven (7) round trips from 10:00 AM to 6:00 PM. The average daily ridership is 480 trips on weekdays, 260 trips on Saturdays and 120 on Sundays.

The #15 Chelmsford/Westford Bus enters Chelmsford from Carlisle Street in Lowell, and continues to Brick Kiln Road, connecting with the UPS distribution facility, and then extends to the Route 129/ Billerica Road. The route then continues along the Route 129 business corridor into Chelmsford Center and out Route 110/ Littleton Road to Westford. The service operates

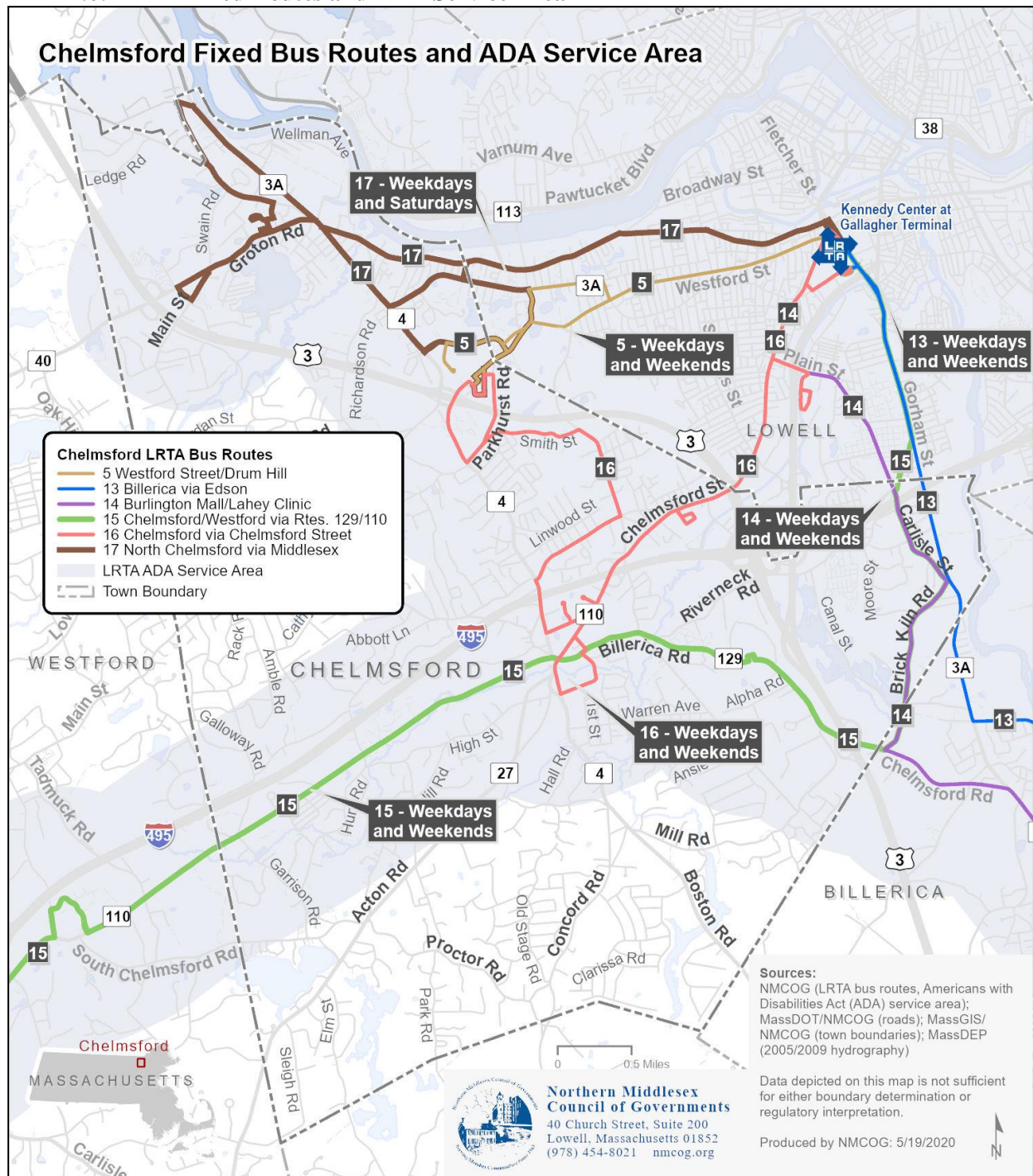
from 6:30 AM to 8:30 PM, with eleven (11) inbound and ten (10) outbound runs on weekdays. Saturday service is comprised of seven (7) inbound and outbound runs operating from 7:30 AM to 5:10 PM. The average daily ridership is 185 trips on weekdays and 40 trips on Saturdays. On Sundays, the #15 and #16 bus routes are combined into a route that enters Chelmsford on Route 110 and continues through the Center into Westford. The Sunday service is comprised of five (5) round trip runs, with a daily ridership of 55.

The #16 Chelmsford Center Bus enters Chelmsford along Route 110/Chelmsford Street in Lowell, traveling through Chelmsford Center. The route continues from Chelmsford Center to Drum Hill Plaza via North Road, Dalton Road, Stedman Street, and Smith Street. The service operates from 6:45 AM to 8:00 PM with twelve (12) inbound and outbound runs on weekdays. Saturday service is comprised of ten (10) inbound and outbound runs from 8:00 AM to 5:45 PM. The average daily ridership is 230 trips on weekdays and 120 trips on Saturdays. As mentioned above, the Sunday service combines the #15 and #16 bus routes into a single route that enters Chelmsford on Route 110, continues through Chelmsford Center, and along Route 110 into Westford. The Sunday service is comprised of five (5) round trip runs, with a daily ridership of 55.

The #17 North Chelmsford Bus enters Chelmsford from Westford Street in Lowell, connecting with the Lowell General Occupational Health Center on Technology Drive and the Drum Hill Plaza. The route continues along Route 4 to Princeton Boulevard and Middlesex Street through Vinal Square. The Chelmsford portion of the Route 40 corridor is covered by the number 17 bus, as well as Dunstable Road and Tyngsborough Road (Route 3A). The service operates from 6:00 AM to 7:10 PM, with fifteen (15) inbound and fourteen (14) outbound runs on weekdays. Saturday service is comprised of eleven (11) inbound and ten (10) outbound runs from 8:00 AM to 5:55 PM. The average daily ridership is 310 trips on weekdays and 100 trips on Saturdays. The #17 bus route was not included in the Sunday pilot program.

The above routes are shown on Map 4.6 on the following page.

MAP 4.6: LRTA Fixed Routes and ADA Service Area



Paratransit Service

The LRTA operates paratransit service through two distinct programs, all under the title “Road Runner”. The primary service is the Americans with Disabilities Act (ADA) complementary service, as mandated by Federal law, while the second demand response service is operated by each community’s COA with funds provided by the LRTA. Additionally, the Road Runner

program offers transportation to the Bedford VA Clinic and Boston area hospitals every Wednesday. The fare for Road Runner services is \$2.00 each way in-town, and \$3.00 each way between communities. The fare for the Wednesday hospital bus is \$12.50 round trip to the Bedford VA Clinic, and \$25.00 round trip for the Boston hospitals.

The Chelmsford ADA Road Runner paratransit service consists of one or more (depending upon the daily demand) wheelchair lift-equipped minibuses, operating throughout the LRTA fixed route ADA service area. Weekdays the ADA service operates from 6:00 A.M to 6:00 P.M. The Saturday service operates from 7:30 A.M. to 6:00 P.M. and during the Sundays pilot, from 10:00 A.M. to 6:00 P.M. Trips can be scheduled one day in advance by calling the Road Runner office in Lowell. These trips are reserved for disabled passengers who are not able to access a fixed route bus. In general, the ADA complementary service area is defined as a three-quarter mile radius surrounding existing LRTA fixed routes. Within the Town of Chelmsford, the ADA service area is smaller on Sundays, as the #17 North Chelmsford route does not operate. In Fiscal Year 2019, Chelmsford residents generated nearly 5,000 ADA passenger trips.

The Road Runner Council on Aging service consists of two wheelchair-lift-equipped minibuses operating within the Town, and surrounding communities. The service is available from 8:00 A.M. to 4:00 P.M., Monday through Friday, and generally requires a two-day (48-hour) advanced booking. The LRTA owns the minivans, leases them to the Town, and provides funds for vehicle operation. Residents schedule trips by calling the Chelmsford Senior Center. Senior Center staff schedule, dispatch and drive the minibuses. The Road Runner COA van reported nearly 6,100 passenger trips in Fiscal Year 2019.

Elder Services of Merrimack Valley, Inc. (ESMV) recently initiated CareRide, an on-demand pilot transportation program. The service provides alternative rides when local Senior Centers are unable to accommodate patrons needing rides to non-emergency medical appointments. The program uses an Uber platform with accessible vans for service. This service is available throughout the Merrimack Valley and provides non-emergency medical transportation in the Greater Lowell area and to Boston for people age 65+. The program is referral based and patrons must contact the COA prior to referral. Accessible vans are available and the cost per ride is \$4.00, regardless of the destination.

Meeting the Transportation Needs of Older Residents

The Town is in the process of completing the *Chelmsford Age-Friendly Action Plan*. According to the draft document now under review, the following transportation-related challenges were identified through listening sessions, in the recent Master Plan survey, and in discussions within the Transportation domain team:

- Half of the respondents to the Master Plan survey indicated that it is very important or extremely important for the town to establish providing public transportation as a priority.

- Providing reliable and adequate transportation services for older residents is a valued goal: 72% of respondents to the Master Plan survey rated this as very important or extremely important. However, 70% of survey respondents indicated that they are unfamiliar with the transportation for seniors and those with disabilities that is already in place, suggesting a knowledge gap about transportation services in Chelmsford.
- Members of the transportation domain team conclude that the following are challenges in Chelmsford:
 - An estimated 400+ senior residents lack a reliable method of transportation. Most of these residents are unable to drive and depend on family, friends, and the Lowell Regional Transit Authority for their transportation needs.
 - The spectrum of transportation resources in Chelmsford operates within “silos” and lacks integrated, timely mobility solutions leading to patron confusion and inability to connect to service when needed; often reservations must be made at least 48 hours in advance.
 - It is challenging to access information about available transportation services, pricing, schedules, and regional coordinating routes.
 - There is a continued need to assess the Town’s capacity to meet residents’ unmet demand for doctor/medical appointments, pharmacies, grocery shopping, general shopping, and other transportation needs.
 - There is a lack of services for urgent medical transportation, which does not rise to the level of a 911 emergency.
 - There is a lack of same day accessible and affordable transportation within the Merrimack valley; typical Uber/Lyft rides cost \$9 - \$13 one way within Chelmsford; and cost is higher for travel to neighboring communities.
 - There is a need for coordination for travel from Chelmsford to the Boston area hospitals as well as Emerson Hospital in Concord MA.

To strengthen transportation for older Chelmsford residents, the Transportation domain team found that there is a need to:

- Reduce the 48-hour notice required for Senior Center transportation reservations. Consider a fixed route shuttle incorporating transportation to the Senior Center, Town Meetings, shopping, the Library, faith-based organizations, and senior housing properties.
- Continue to explore contractual amendments with Elder Services of Merrimack Valley and local communities to address limited out of town service to the Social Day Program.
- Explore volunteer transportation services for seniors to meet the needs of immobile residents for doctor/medical appointments, pharmacies, and shopping.

Pedestrian and Bicycle Facilities

In many communities, bicycling and walking have become key factors for measuring quality of life. Communities that promote walking and other forms of non-motorized transportation can reap significant social, environmental and health benefits. Safe, convenient and comfortable trails, sidewalks and walkways provide opportunities for exercise, help people meet and socialize, and provide mobility options for children and others who do not drive. With the option to walk or bike available to residents, shoppers and workers, the number of motorized vehicles on the roadways can be reduced, which helps to decrease traffic congestion, air pollution and the need for large parking areas.

Non-Motorized Transportation and Healthy Aging

Being able to get around using the means of transportation one desires is a fundamental aspect of healthy aging. Transportation links older adults to essential goods and services and to social interaction with family and friends, and provides an element of independence that is important to physical and emotional well-being. For the older adults who are not licensed to drive (12% of people 65-69 and 52% of those age 85 and over¹⁴), walking or public transportation may be the only transportation options available. Older drivers average six trips per week outside their homes, while non-drivers average only two trips.¹⁵ This reduction may have a significant impact on social connections and lead to depression and other mental health issues.

Walking and/or wheelchair use for daily activities is a valuable means for getting recommended daily exercise. Walking has numerous health benefits, such as:

- Improving blood pressure;
- Reducing the risk of heart disease;
- Alleviating depression; and
- Significantly reducing the risk of Alzheimer's.

However, walking is more dangerous for older adults than for younger residents. Older adults are more likely to be hit by automobiles, and are more likely to die as a result of such accidents. People age 70 and over comprise less than 10% of the nation's population but account for 18% of pedestrian deaths.¹⁶ Overall, the elderly may be fifteen times more likely to be injured or killed as pedestrians than as drivers.¹⁷ In addition, injuries from falls are a leading cause of death in older adults. Streets, curbs and sidewalks that have uneven surfaces, cracks, grade changes and tripping hazards can present a significant health risk for a community's senior population.

¹⁴ Bureau of Transportation Statistics; <https://www.bts.gov/content/licensed-drivers>

¹⁵ Livable Community Indicators for Sustainable Aging in Place, MetLife Mature Market Institute, 2013.

¹⁶ Sandra Rosenbloom, *The Mobility Needs of Older Americans: Implications for Transportation Reauthorization*, The Brookings Institution.

¹⁷ Deborah Howe, *Aging as the Foundation for Livable Communities*, Routledge, 2012.

Community Initiatives for Improving Non-Motorized Transportation

Enhancing transportation requires community design improvements to help everyone, including older adults, stay active and healthy in a safe manner. The following measures are typically utilized to address bicycle and pedestrian needs within a community:

- Evaluate local needs for pedestrian, bicycle and trail access and mobility;
- Create a plan for upgrading existing facilities, establishing future networks, and obtaining needed funding;
- Develop and maintain pedestrian and bicycle facilities using state and federal grant funds, and local Community Preservation funds;
- Enact local bylaws and subdivision regulations that enhance compact development and encourage the provision of pedestrian and bicycle accommodations; and
- Consider pedestrian and bicycle needs within the site plan and subdivision review processes.

The Town established a Bicycle and Pedestrian Advisory Committee (BPAC) in 2008 to provide input to the Board of Selectmen and various Town Boards, and to help advance bicycle and pedestrian planning within the community. The BPAC meets with DPW staff annually to discuss initiatives, projects and concerns. The 2010 Master Plan called for the creation of a comprehensive Bicycle and Pedestrian Plan for the town, and in 2016, the BPAC published the Chelmsford Bicycle and Pedestrian Plan¹⁸ (BPP). The plan identifies locations for additional bicycle and pedestrian facilities and improvements, as discussed in the Sidewalks and the Bicycle Facilities and Paths sections of this document. The BPAC has also provided an annual summary report of activities to the Master Plan Committee for inclusion in the plan showing that the BPAC actively pursues many projects aimed at maintaining and enhancing the town's bicycle and pedestrian facilities and programmatic needs on an ongoing basis. For example, 2019 activities included the following:

- Discussions on e-bike use on the Bruce Freeman Rail Trail. This included review of State regulations as well as communication with the other towns along the trail. BPAC has also been working with Chelmsford Police regarding motorized vehicle use on the trail.
- Engagement with the DPW regarding root incursion on the rail trail. This will require extensive maintenance and replacement of up to a mile of the rail trail surface. BPAC is working with the DPW to obtain funding for this activity.
- BPAC has been coordinating the fabrication and installation of another BFRT kiosk at Heart Pond.
- BPAC is finalizing plans for the Carol Cleven Memorial with the Grist Mill Apartment developer as well as the town.

¹⁸ <http://ma-chelmsford.civicplus.com/DocumentCenter/View/9041/Bicycle-and-Pedestrian-Plan-June-2016>

The Town has also established Healthy Chelmsford, a community partnership striving to improve health and the quality of life in Chelmsford. Healthy Chelmsford has produced a two-page brochure¹⁹ with maps of seven (7) selected walking routes throughout town, mostly or entirely on sidewalks, along with information on the total length and estimated calories burned for each route.

Sidewalks

Map 4.7 shows the existing sidewalk network in Chelmsford, while Map 4.8 shows the condition of sidewalks based on information provided by the Town. When considering improvements to bicycle and pedestrian facilities it is important to take into consideration all users, including those with physical impairments. Sidewalks should be wide enough to safely accommodate wheelchairs, and wheelchair ramps at crosswalks should meet ADA standards. When upgrading pedestrian-actuated signals at crosswalks, consideration should be given to those with visual impairments by providing an audible indicator. ADA sidewalk construction guidance requires that a sidewalk have a minimum clear width of four feet, provided it is designed with additional considerations. MassDOT ADA Section 504 Transition Plan defines the additional considerations as:

- Four-foot minimum walk width excluding the curb width; and
- Passing areas are required in any case where a five-foot minimum sidewalk width is not provided.

In order to meet ADA requirements, care must be taken when designing sidewalks that also have physical barriers built into them, such as utility poles, fire hydrants and traffic signal bases. An unobstructed three-foot path of travel that excludes the curb must be maintained past any sidewalk obstructions. Adequate width and lack of obstructions are not the only requirements that need to be met. Factors such as wheelchair accessible ramps, slope of the sidewalk and the type of construction material used will factor into the design.

Chelmsford's suburban development pattern and municipal budget constraints present significant challenges for providing sidewalks throughout the town. While it may not be practical to provide sidewalks on every street, a lack of accessible sidewalks in critical areas creates public safety concerns. The 2016 Chelmsford Bicycle and Pedestrian Plan identified priority areas for pedestrian improvements and categorized them into three types: pavement/sidewalks extensions, crosswalk installations, and signage improvements. The plan prioritizes these projects for completion in a three-, five- and eight-year time period. In total, the plan identifies 26 sidewalk installation or sidewalk improvement projects, four (4) crosswalk projects, and eight (8) signage projects.

¹⁹ <https://www.townofchelmsford.us/DocumentCenter/View/4707/Walking-Paths-Brochure-Town-of-Chelmsford?bidId=>

Sidewalk construction is expensive and funding sources are very limited. Without a dedicated funding source, even the best-crafted plan cannot be implemented. The most likely funding source for sidewalk construction is local revenue that provides a predictable capital outlay through the town budget. However, given the Town's budgetary situation resulting from the recent pandemic, this may not be possible. A more practical approach to funding sidewalk improvements in Chelmsford may be the establishment of a sidewalk improvement account negotiated as part of the approval process for private development and redevelopment projects.

Bicycle Facilities and Paths

Currently, Chelmsford does not have any designated on-road bicycle facilities. Closed circuit trails, multi-use paths and walkways can be found in many of Chelmsford's parks and open space areas, and 5.2 miles of the Bruce Freeman Rail Trail (BFRT) are located within Chelmsford.

The BFRT enters Chelmsford from Lowell and continues through to Westford and on to Concord, with a planned extension to Framingham. The rail trail consists of a 10-foot wide paved path with a 2-foot wide shoulder on each side, and crosses several roadways within Chelmsford. The crossing control at most of these intersections involves warning signs on the trail approaches, stop signs at the intersection, and bicycle crossing warning signs on the roadway approaches. Additional controls exist at crossings of higher traffic roads, including yellow flashing warning lights on the roadway at the Golden Cove Road crossing, and pushbutton activated walk signals in Central Square and the crossings of Fletcher and Chelmsford Streets. Rectangular Rapid Flash Beacons have been installed at multiple locations including Chelmsford Center, Bruce Freeman Rail Trail Crossings and school crossing locations.

In order to prioritize roadways for bicycle facility improvements, the 2016 Bicycle and Pedestrian Plan identifies popular recreation destinations and points of interest, and the safest or most common bicycle routes used to access these destinations. Based on these destinations and routes, the BPP identifies and prioritizes specific projects that include adding bike lanes, widening roadway shoulders, painting sharrows, installing bike racks, and installing signage. The Bicycle and Pedestrian Advisory Committee has also developed recommended guidelines for the styles and location of bicycle racks, which can be found on the BPAC webpage²⁰.

Complete Streets

A Complete Street is one that provides safe and accessible options for all travel modes – walking, biking, transit, and motorized vehicles – for people of all ages and abilities. The Massachusetts Department of Transportation (MassDOT) Complete Streets Funding Program was created by legislative authorization through the 2014 Transportation Bond Bill, with the

²⁰ <http://www.townofchelmsford.us/265/Bicycle-Pedestrian-Advisory-Committee>

intent of rewarding municipalities that demonstrate a commitment to embedding Complete Streets in policies and practices. The benefits for municipalities that participate include:

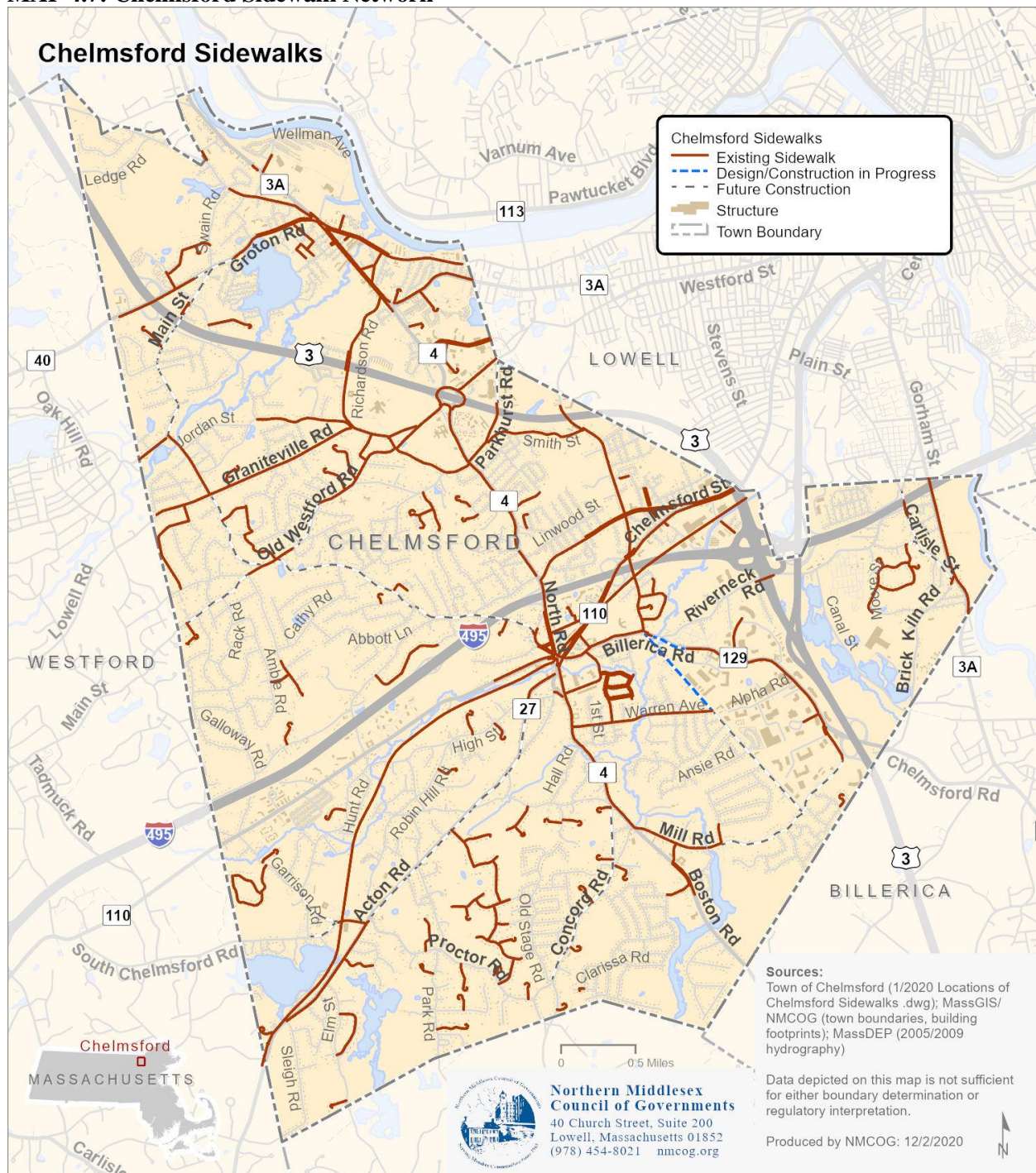
- Up to \$50,000 in funding for technical assistance to analyze community needs and develop a Complete Streets Prioritization Plan, and
- Up to \$400,000 in funding for construction of Complete Streets infrastructure projects.

To be eligible for technical assistance, a municipality must attend training and approve a Complete Streets Policy in the manner prescribed. In order to be eligible for project funding, the municipality must complete a Complete Streets Prioritization Plan, which is a targeted investment strategy.

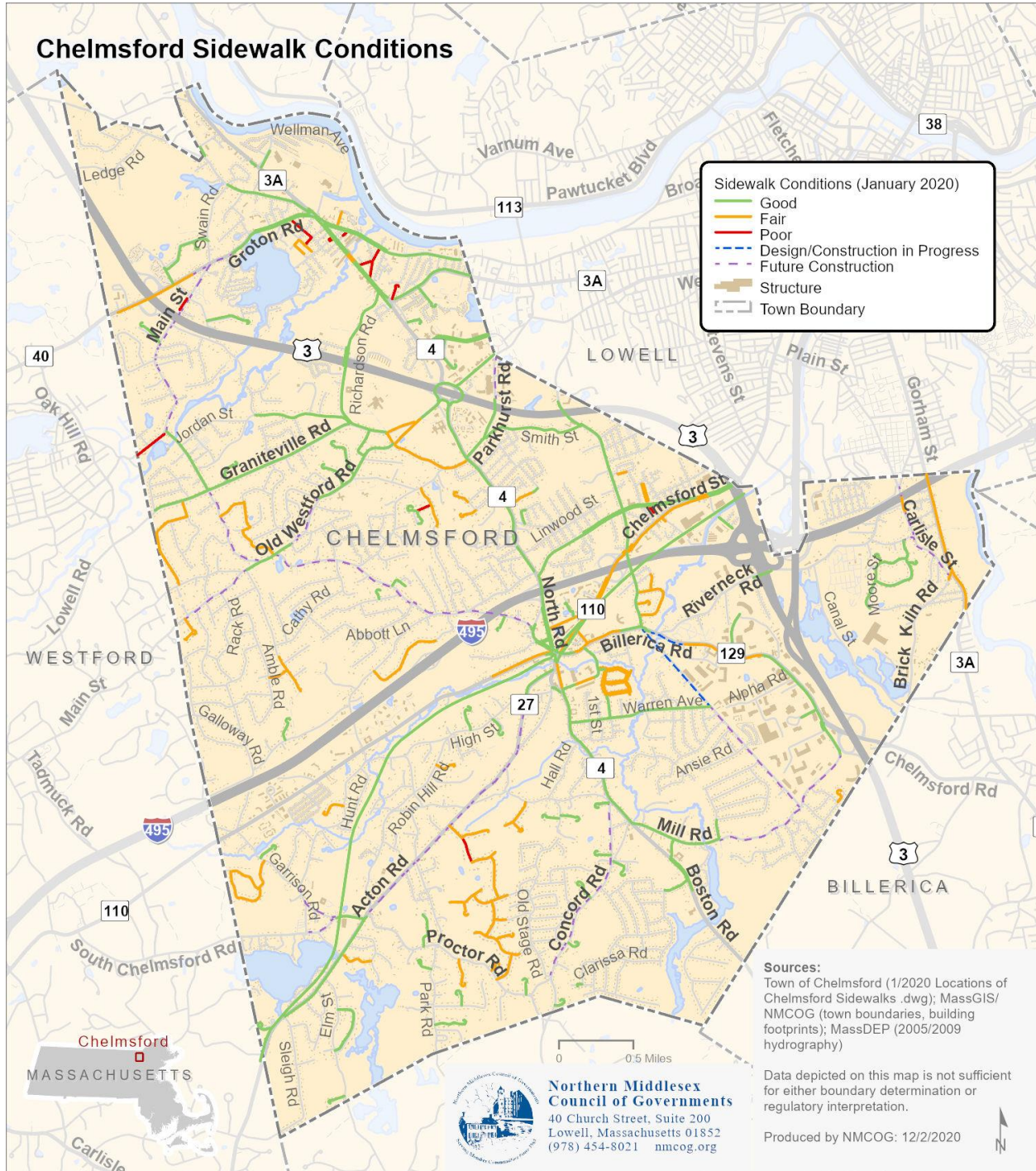
The Chelmsford Board of Selectmen approved the Town's Complete Streets Policy in 2017. The Town then applied for and was awarded a \$50,000 technical assistance grant for development of the Complete Streets Prioritization Plan²¹. In 2018, the Town applied for and received \$328,000 in Complete Streets construction funding for improved sidewalks and ADA access along Billerica Road, multimodal improvements along Richardson Road, and a crosswalk at the intersection of Parkhurst Road and North Road.

²¹ <https://www.townofchelmsford.us/DocumentCenter/View/11690/Chelmsford-Complete-Streets-Prioritization-Plan-Report>

MAP 4.7: Chelmsford Sidewalk Network



MAP 4.8: Chelmsford Sidewalk Conditions



Roadway Improvements through the Northern Middlesex Transportation Improvement Program (TIP)

The Town has been proactive in collaborating with the Northern Middlesex MPO and MassDOT to secure Federal funds to construct improvement projects on Town roadways. In 2019, the Town received nearly \$5.7 million in federal funding to construct improvements at the intersection of Route 129 (Billerica Road) and Riverneck Road. In FFY 2020, the Town secured \$3.2 million for improvements to the Route 4 (Boston Road)/Concord Road intersection. Future projects eligible for the TIP include the installation of traffic signals at I-495 and Route 110 (Chelmsford Street), as well as improvements along the Chelmsford Street corridor approaching Central Square. In 2021, the Town is planning to submit an application for TIP funding to improve the intersection of Richardson Road and Princeton Street.

Regionally Significant Projects

The Town of Chelmsford is part of a larger regional network of roadways serving the Greater Lowell region and beyond. MassDOT continues to maintain I-495 and Route 3 through maintenance and preservation projects.

The most impactful regional project under design is the replacement of the Rourke Bridge over the Merrimack River in Lowell. Currently, the Drum Hill Road/Westford Street/Wood Street corridor running between Route 3 at Drum Hill Square and Pawtucket Boulevard in Lowell experiences high levels of congestion and delay during peak periods of the day (pre-Covid-19). This corridor carries nearly 30,000 vehicles per day. Congestion in this corridor is partly attributed to a bottleneck at the temporary Rourke Bridge crossing the Merrimack River. Design work on a replacement of the Rourke Bridge is underway and construction of a new crossing with additional capacity is expected to be complete by 2027.



Picture 4.2: Rourke Bridge Replacement Alternatives (1/7/2021)

Freight Railroads

There are two active freight rail lines that pass through the Town of Chelmsford. The Stony Brook line, which is owned by Pan Am, extends to Devens. This line has approximately six

trains daily, each carrying between 60 and 75 rail cars. The New Hampshire Main Line, which is owned by the MBTA, branches off from the Stony Brook Line in North Chelmsford, and runs north to Concord, New Hampshire. Pan Am has trackage rights along this line, which carries approximately four freight trains traveling in both directions daily. Actual figures regarding the commodities and tonnage carried are not available, as the rail companies consider the data to be proprietary.

Public Input

The public input received relative to transportation infrastructure and travel conditions in Chelmsford is summarized in this section. An online survey was developed and provided to residents for their feedback as part of the Master Plan development process. Over 1,000 responses were received and analyzed. Question 7 of the survey asked residents to rate several transportation services and facilities and the results are summarized in Table 4.15.

Table 4.14: Survey Respondents View of Transportation Conditions in Chelmsford

Category	Excellent	Good	Fair	Poor	Unable to Score/ Unfamiliar
Road maintenance	3.8%	34.5%	43.1%	18.4%	0.2%
Traffic flow	1.7%	22.2%	43.9%	30.8%	1.4%
Speeding enforcement	8.1%	44.9%	24.1%	11.8%	11.1%
Availability of pedestrian accommodations, such as pathways and sidewalks	7.1%	39.6%	34.2%	18.4%	0.7%
Condition of sidewalks and pedestrian facilities	5.7%	42.9%	34.0%	14.0%	3.4%
Roadway and intersection safety	4.4%	43.2%	38.7%	12.5%	1.2%
Bicycle facilities and accommodations	11.7%	37.5%	20.4%	10.1%	20.3%
Transportation for seniors and those with disabilities	3.0%	13.2%	9.9%	5.9%	68.0%

Chelmsford is actively engaged in an Age Friendly Initiative to further enhance its suite of programs/services designed to improve the quality of life, mobility and independence of its residents. In order to assess the Town's unmet needs in these areas, Question 8 asked residents to rate the importance of several Age Friendly services on a scale of 1 to 5. Input on the transportation-related categories is summarized in Table 4.16. Provision of reliable and adequate transportation services for older residents is listed as being of the highest importance for those responding to the survey.

Table 4.15: Age Friendly Transportation Services Importance

Category	1-Not Important	2-Slightly Important	3-Moderately Important	4-Very Important	5-Extremely Important
Reliable and adequate transportation services for older residents	2.1%	6.3%	20.1%	37.8%	33.9%
Night/weekend transportation service for those in need	5.3%	11.9%	27.9%	32.4%	22.4%
Information about transportation options for those in need	3.1%	8.7%	24.2%	36.3%	27.7%

Under Question 9 of the survey, respondents were asked to identify the most critical issues facing Chelmsford over the next ten years. Of the 975 responses received for this question, transportation related issues were mentioned 506 times (52% of all responses). Respondents listed this issues as their first answer 172 times (18%), their second answer 202 times (21%) and third 134 times (14%), making it one of the most noted answers to the question.

Question 11 asked residents to rate the importance to residents of establishing various priorities in the future. Table 4.17 summarizes the transportation categories and their importance to residents. Respondents rated non-motorized transportation facilities as moderately to extremely important to the overall transportation system in Chelmsford. Providing more public transportation facilities was listed as a priority for the Town as well.

Table 4.16: Transportation Priority Importance

Category	1-Not important	2-Slightly important	3-Moderately important	4-Very Important	5-Extremely Important
Adding sidewalks/pathways	4.3%	12.4%	27.6%	33.1%	22.6%
Increasing available accommodations for non-motorized transportation (pedestrians and bicycles)	7.8%	15.6%	26.1%	27.3%	23.3%
Providing public transportation	6.3%	13.5%	29.0%	28.8%	22.4%

On May 30, 2019, the Master Plan Committee members participated in a public visioning session, which included a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. The following priorities related to transportation and circulation were identified through the exercise:

- Strengths
 - Location on Route 3 and I-495 is convenient for businesses and commuters
 - Bruce Freeman Rail Trail
 - Public Transportation Options

- Weaknesses
 - Traffic
 - Bottlenecks in the Town Center due to one bridge at the stream crossing
- Opportunities
 - Enhance public transportation
 - Address / reduce traffic congestion
 - State investment in road infrastructure
 - Development of a commuter rail station
- Threats
 - Traffic cutting through Chelmsford increasing congestion on local roads
 - Aging infrastructure including transportation infrastructure, schools and other town buildings
 - Traffic from increased commercial development
 - Rourke Bridge
 - Commuter rail station near Vinal Square would worsen traffic

ISSUES AND OPPORTUNITIES

In 2017, Chelmsford adopted a town Complete Streets Policy to “utilize a number of transportation modes to create a linked network of roads, walkways, trails and other transit systems to accommodate a full range of users.” The Complete Streets approach to transportation takes into account all users of a transportation system when undertaking improvements to the network. With the policy in place, the Town incorporated this approach into all publicly and privately funded transportation projects.

Non-Motorized Transportation Issues

The Chelmsford Bicycle and Pedestrian Advisory Committee provided extensive comments concerning the need to integrate bicycle and pedestrian considerations into all aspects of transportation planning and management. These recommendations were supported by the Master Plan Committee and have been further incorporated into the recommendations section that follows.

The most notable deficiency in terms of bicycle and pedestrian facilities is the lack of a connected system throughout town. Future planning initiatives should focus on closing the gaps in the bicycle and pedestrian network, with particular attention for connecting the Town’s parks, historic sites and conservation land. In 2016 (and later updated in 2021), the Town’s Bicycle and Pedestrian Committee (BPAC) developed a comprehensive Bicycle and Pedestrian Plan with a focus on connectivity, including establishing linkages to the LRTA system and to any future MBTA commuter rail service in North Chelmsford. The Bicycle and Pedestrian Plan emphasizes safety and accessibility for users of all abilities and includes specific

recommendations and a prioritization schedule for implementation. These recommendations follow the Complete Streets policy adopted by the Town.

Bicycles are permitted to travel on all Chelmsford roadways with the exception of I-495, Route 3 and the Lowell Connector. Chelmsford's roadways currently have no dedicated bicycle routes or lanes. These types of facilities are particularly needed around commercial centers, office parks and schools. MassDOT requires that bicycle and pedestrian accommodations be considered in state funded roadway improvements, wherever feasible.

The Town currently finances transportation improvements through developer contributions in the form of 53G funds, whereby a fee of \$100 per new parking space is levied. The Master Plan Committee believes that this fee should be increased and that, as part of any development or redevelopment project, developers should be responsible for installing or repairing sidewalks along the project's frontage or in the immediate vicinity of the project.

Bicycle and pedestrian safety cannot be facilitated simply by improving bicycle and pedestrian facilities. The establishment of programs geared to bicyclist, pedestrian, and motorist safety education is essential. Giving special attention to the needs of children is especially important, since walking and bicycling are their only independent modes of transportation and they lack the experience of an adult. This education effort should be conducted cooperatively by the School Department and public safety officials. The Town should also continue to participate in the Massachusetts Safe Routes to School program. In addition, the Town should continue to seek funding through the State's Complete Streets Funding Program.

Parking Issues

Town's parking regulations need to be revised and modernized, to be more consistent with present day development practices and transportation trends. Parking has long been identified as a significant issue within the Town Center and Vinal Square. In 2013, NMCOG conducted a study of the Town Center, focusing on parking, pedestrian circulation and accommodations, and bicycle facilities. Some issues identified in that study included the need for wayfinding signage for municipal parking areas and points of interest within the Center, lack of Bruce Freeman Rail Trail parking, lack of bicycle facilities along Route 110 and Route 4, bicycle parking availability, sidewalk condition, crosswalks, and the proposed Beaver Brook walkway.

In addition, NMCOG conducted a traffic and safety study of Vinal Square, which included a focus on parking needs in North Chelmsford. At the time of the study, there were significant vacancies in the Square and parking capacity was deemed adequate for the demand. The study looked at the possibility of a new commuter rail station in Vinal Square and the future need for additional parking if the station were to be developed and put into service. The Town has applied for and received District Local Technical Assistance (DLTA) funding for NMCOG to assist the Vinal Square Master Plan Committee in a public engagement effort to identify roadway and streetscape improvements in Vinal Square. This is essentially the first step in initiating a project

that could be funded through the Northern Middlesex MPO Transportation Improvement Program (TIP).

The 2010 Master Plan cited the lack of parking for users of the Bruce Freeman Rail Trail, over the last decade additional parking has been provided at several additional locations; town-owned Sunny Meadows Farms, the Stop and Shop redevelopment project located on Chelmsford Street, within the rail trail right-of-way behind the Brickhouse Restaurant as part of the Grist Mill project, and a new parking area was created on Chelmsford Street adjacent to the rear of Town Hall. In addition, during non-event times, parking is available at the Chelmsford Center for the Arts on North Road. The 2010 Master Plan suggested the investigation of a possible agreement for off-season use of the Little League parking area by the rail trail users, but this agreement may no longer be needed given the availability of parking in the newly added Town Hall lot.

Public Transportation Issues

Commuter Rail

The Master Plan Committee supports further investigation and consideration of the establishment of a commuter rail station in North Chelmsford, should rail service be extended from Lowell to Nashua and Manchester, Hampshire. The Town should continue to monitor the progress of the commuter rail extension project proposed by the State of New Hampshire, and position the community to take advantage of transit-oriented development opportunities should the project go forward.

Lowell Regional Transit Authority Service

Service along Chelmsford's major roadways such as Route 129, Route 4 and Route 27 should be considered through discussions with the Town and the Transit Authority. Expanded service that links the High School to Route 129, Route 110 and Riverneck Road would provide access to after-school jobs for students. More service is also needed between the Senior Center and elderly housing, and between the town's larger neighborhoods and its business and retail centers.

The LRTA should create a suburban transit hub within Chelmsford (possibly in the Town Center or North Chelmsford) with shelter and seating. In addition, LRTA should provide clearly marked bus stops with shelters, posted route maps and schedules should be located along all bus routes. A new bus shelter, in collaboration with the LRTA and Town, was installed at the corner of Omni way and Billerica Road, in the Route 129 corridor.

The hours of service should be extended later into the evening and on weekends to accommodate medical services, retail workers and other non-discretionary trips. The Committee supports the ongoing door-to-door service for older residents and those with disabilities and special needs.

Roadway Issues

During the public involvement process, residents identified a need to address traffic management and traffic calming within the residential neighborhoods. Traffic calming measures include actions that are used to slow and manage traffic within a neighborhood, such as diverters, speed humps, raised crosswalks, roundabouts and signage. Any traffic-calming program should include objective criteria for evaluating neighborhood traffic problems, such as traffic volumes, pedestrian and bicycle safety, and vehicle travel speeds, especially in areas where children and seniors are concentrated. The use of traffic calming devices should be carefully considered and traffic-calming proposals should be reviewed by the Traffic Safety Committee, to ensure that any proposed changes will not significantly increase emergency response times or hinder effective evacuation of an area in the event of an emergency. Any traffic calming effort should also take into account pedestrian and bicycle accommodations. In 2020, a traffic calming pilot project was initiated along Main Street. As there are no sidewalks on Main Street, the narrowing of the road can negatively affect pedestrians and bicyclists in the area.

Per the 2010 Master Plan recommendation and in response to issues raised at a town wide transportation forum in 2019, a Traffic Safety Committee was established to provide input on transportation related issues, and to outline a clear process for addressing citizen concerns. This committee has representation from the Police Department, Engineering, DPW and the Town Manager. Expansion of membership to include representation from BPAC should be considered.

The MassDOT I-495 Corridor Study resulted in a number of recommendations, including the addition of left-turn lanes and traffic signals at the two intersections of the I-495 ramps and Chelmsford Street. Preliminary design for this project is ongoing.

Crash data analysis performed by NMCOG has identified five high crash intersections in Chelmsford: Route 110 at Stedman Street; Drum Hill Road at Parkhurst Road; Route 3A at Route 40 (Vinal Square); Route 110/Route 4/ Route 129 (the Center);, and Route 4 at Summer Street. Each of these locations are eligible for Highway Safety Improvement (HSIP) funding through the regional TIP. NMCOG also examined bicycle and pedestrian crashes over a five-year period (Table 13) and found crash hotspots around Chelmsford Center, along Chelmsford Street near the I-495 and Route 3 interchanges, and along the Drum Hill Road corridor.

Some existing traffic signs located throughout Town do not comply with current standards and requirements of the Manual of Uniform Traffic Control Devices (MUTCD). Per the 2010 Master Plan, the Town has incrementally, on a project-by-project basis, replaced and upgraded traffic signage over time, in order to comply with current state and federal standards. The Town has also purchased asset management software, which will assist in maintaining a sign inventory program that documents the location, type and condition of each sign. In addition to maintaining the sign inventory, the Town needs to review the current Traffic Rules and Regulations section of the Town Code in order to comply with Select Board approvals of regulatory signage. These

regulations itemize the regulatory signage that is enforceable by Chelmsford Police and should be updated as necessary.

Per the recommendations included in the 2010 Master Plan, the DPW has upgraded their pavement management software and are currently collecting asset data throughout Town.

Signalized intersection technology has been upgraded in multiple locations throughout Town, including an upgrade of the three signalized intersections in the Town Center, the addition of a left turn signal at Parkhurst Road and North Road, and upgrades at Route 129 and Omni Way.

The Police Department has created a dedicated Traffic Enforcement Division, whose purpose is to increase enforcement of traffic laws and support overall roadway safety efforts in Town.

Town has successfully implemented an electric vehicle charging station program with installations located at Town Hall, Library, and DPW, Roberts Field, the Senior Center, and High School. New charging stations will be installed at the Forum Rink in 2021.

Key Intersections in Chelmsford

As part of the 2010 Master Plan, the committee identified 15 intersections for further study. NMCOG made recommendations for improvements to address traffic safety concerns at each location. The table below summarizes improvement recommendations and actions taken by the Town.

Table 4.17: Recommendations and Actions Taken at Key Intersections in Chelmsford

Intersection	2010 MP Recommendations	Town Actions Taken
Route 27 (Acton Road) at Byam Road	Given the very low traffic volumes, no change is recommended at this time.	No Action Taken
Mill Road at Turnpike Road	Improve signage and upgrade/maintain pavement markings	Widened sight lines and installed updated signage around the intersection
	Increase the number of mowings per year to keep shrubs and grass from obstructing drivers' views of oncoming traffic.	
Westford Street at Pine Hill Road	Update pavement markings	No Action Taken. Work at this intersection will be in conjunction with sidewalk improvements along Westford Street
	Improve signage	
	Stripe left-turn lane for westbound Westford Street	
	Over the long term, correct turning radius deficiency	
Route 3A (Gorham Street) at Brick Kiln/Carlisle Roads	Upgrade/install signage and pavement markings	Route 3A has recently been resurfaced. The Town is currently studying the intersection at Brick Kiln and Carlisle Road
	Improve and restore sidewalk to address ADA compliance	
	Resurface roadway	
	Implement three-way stop control, as currently planned by the Town	

Intersection	2010 MP Recommendations	Town Actions Taken
	Following completion of improvements, re-evaluate crash rate to determine if existing safety measures are needed	
Brick Kiln Road at Moore Street	Relocate the utility pole away from the sight triangle	No Action Taken
	Install pavement markings on Moore Street	
Byam Road at Locust Avenue	Short-term: install pavement markings and stop sign	The Traffic Safety Committee has scheduled a site visit for Spring 2021
	Long-term: design and construct geometric improvements to correct sight distance issues	
Route 27 (Acton Road) at Barton Hill Road/Park Road	Periodically trim brush along south side of Route 27	DPW trims bushes annually and upgrade signage and markings as needed
	Install stop line on Park Road approach	
	Install "Intersection Ahead" warning signs	
Parkerville Road at Garrison Road	Upgrade pavement markings	Pavement Markings were upgraded in 2020. Intersection has not been approved for a stop sign
	Install stop sign on Garrison Road approach	
Maple Road at Parkerville Road	Conduct a detailed study to determine if a roundabout is feasible at this location	Landscaping has been conducted to improve intersection sight distance
	Update signage	
	Modify landscaping to improve intersection sight distances	
Middlesex Street at Quigley Avenue	Relocate "No left turn" sign on westbound Middlesex Street approach	No Action Taken
	Repaint pavement markings	
Route 3A (Princeton Street) at Richardson Road	Trim overgrown brush	A project is currently being initiated with MassDOT to install a traffic signal at this location
	Design and install traffic signals	
Davis Road at Locke Road	Install "Intersection Ahead" warning sign	No action taken
Old Westford Road at Davis Road	Install four-way stop control	Intersection ahead warning signage has been installed. The intersection remains two way stop control
	Install "Intersection Ahead" warning signs in advance of the intersection	
Route 129 (Billerica Road) at Riverneck Road	Design and install a fully-actuated traffic signal	Further study did not warrant installation of a traffic signal. Intersection reconstruction is currently underway
Route 4 (Boston Road) at Concord Road/Parker Road	Design and construct geometric improvements that include channelization, striping and signage	Further study did not warrant installation of a traffic signal. Intersection reconstruction will begin in 2021
	Install a fully-actuated traffic signal	

In 2019, the Northern Middlesex MPO approved the 2020-2040 regional long-range transportation plan. As part of that effort, Town staff met with NMCOG to discuss future projects to potentially be undertaken as part of the TIP process. Key corridors identified at that time included Chelmsford Street, Steadman Street/Golden Cove Road, Westford Street, Littleton Road, and Drum Hill Road. Sidewalk/streetscape projects in Vinal Square, and along Maple Street and North Road were also identified. Bridge improvement projects were recommended for Meadowbrook Road over Stony Brook (culvert project), School Street over Stony Brook, Gorham Street over I-495, and Westford Street over I-495. A potential park and ride lot near Route 3 was also identified as a future priority for the community.

The Issue of Age-Friendly Transportation

Chelmsford recently completed its town-wide Age-Friendly Action Plan with a focus on housing, transportation, community support and health services, outdoor spaces and buildings, respect and social inclusion, civic participation and employment, and communication and information. The transportation-related vision within the action plan is “to secure affordable and accessible transportation available to all residents, as a means of supporting the health, mobility, activity, and participation of people across the lifespan.” Goals outlined in the plan include:

- Incentivize, promote, and facilitate increased use of enhanced COA transportation resources;
- Increase the awareness of transportation options for Chelmsford residents by expanding and increasing the availability of information concerning local transportation options. Coordinate the dissemination of transportation across multiple channels town wide;
- Promote a volunteer transportation program and explore opportunities to increase use of ride-sharing services; and
- Promote Driver Safety.

RECOMMENDATIONS

Non-motorized Transportation Recommendations:

- 4.1** Establish an ongoing bicycle and pedestrian safety program as a joint effort between the School Department, the Police Department, the Bicycle and Pedestrian Advisory Committee, and the Traffic Safety Subcommittee in conjunction with the Department of Public Works.
- 4.2** BPAC should continue to monitor and update the Bicycle and Pedestrian Plan.
- 4.3** Continue to implement the recommendations of the Town Bicycle and Pedestrian Plan. Sidewalk priorities include Route 40, Main Street, Turnpike Road and Westford Street. Bicycle priorities include designation of a bike route connecting Vinal Square and Chelmsford Center, and bike lanes along Littleton road and Princeton Street.

- 4.4** Continue to participate in the MassDOT Complete Streets Program to implement the Town's Complete Streets Prioritization Plan.
- 4.5** Expand shoulders on town roads to minimum four feet width, where possible, to better accommodate bicycles.
- 4.6** Continue town-wide street sweeping to remove sand and other materials from roadway shoulders and sidewalks to comply with the Town's stormwater management program.
- 4.7** Provide erosion control along roadways where flooding conditions can deposit debris, creating a hazard for cyclists and pedestrians.
- 4.8** Incorporate audible signals at signalized intersections, and ensure that all new traffic signals are pedestrian/bicycle actuated.
- 4.9.** Erect bike route and "share the road" signs, where appropriate.
- 4.10** Monitor bicycle/pedestrian crash rates throughout the Town including all rail trail crossings and high use areas including Chelmsford Street/Route 110, the Town Center, and Vinal Square. If a safety issue is identified through monitoring, the Town should work with partners including NMCOG and MassDOT to further study and implement safety improvements.
- 4.11** Continue to participate in the Safe Routes to School Program.
- 4.12** Continue and expand snow removal efforts on priority sidewalks (Town Center, school routes, Vinal Square, main corridors) and enforce the Town's snow removal bylaw. Note: the DPW currently clears 26 miles of sidewalk in town.
- 4.13** Increase the number of bicycle parking facilities throughout town.
- 4.14** Continue to monitor existing parking areas and seek to create additional municipal parking, including designated parking for the Bruce Freeman Rail Trail.
- 4.15** Require bike racks and sidewalks for new commercial and industrial development projects, where appropriate.
- 4.16** The following provisions should be considered as part of the regulatory review process, or through incorporation in design guidelines for development and redevelopment projects:
- Require developers to provide sidewalks and streetscape amenities (lighting, bicycle parking, benches, etc.) through the project permitting and approval process;
 - Encourage traffic calming (physical street features that control vehicle speeds);
 - Provide bicycle and pedestrian accommodations on new or reconstructed local roads;
 - Require bike lanes and shared use paths, where feasible, practical and safe;
 - Provide for access management by limiting curb cuts (consolidating driveways);
 - Require strong landscaping plans that enhance the pedestrian experience;

- While maintaining consistency with the parking requirements under the town's zoning bylaw, limit the size of individual parking areas, breaking large lots into smaller, more pedestrian-friendly landscaped areas with sidewalks and walkways; and
- Require adequate internal bicycle and pedestrian site circulation and connectivity to adjacent sites.

Roadway Maintenance, Safety and Parking Recommendations:

- 4.17** Continue upgrading traffic signal technology throughout the Town.
- 4.18** Continue and expand maintenance of line painting, striping and pavement markings, where the town is responsible.
- 4.19** Strongly promote traffic calming measures, in select areas, using objective criteria.
- 4.20** Continue enforcement of motor vehicle and pedestrian safety laws and work to address such issues through the police traffic enforcement team.
- 4.21** Address traffic congestion issues, as needed.
- 4.22** Continue to utilize the pavement management and asset management programs that take into account all modes of transportation, to ensure that street maintenance and repair occur in a timely manner, thereby reducing the need to perform more costly reconstruction.
- 4.23** Use the Town asset management software to continue management of the traffic control device inventory (signage, traffic signals, pavement markings, etc.) and to identify upgrades needed to comply with the requirements of the Manual of Uniform Traffic Control Devices (MUTCD).
- 4.24** Implement the transportation recommendations outlined in the Drum Hill Master Plan Update.
- 4.25** Work through NMCOG and MassDOT to address safety issues at identified high crash locations and to implement the I-495 Study recommendation calling for signalization of the two I-495 ramp intersections with Route 110.
- 4.26** Implement the recommendations that have not been completed for the fifteen key intersections listed in this section.
- 4.27** Continue to monitor parking utilization and demand in the Town Center and Vinal Square and implement recommendations outlined in parking studies conducted at each location.
- 4.28** Develop streetscape, traffic improvements and an overall conceptual design in Vinal Square based on public engagement and input. Work with NMCOG and MassDOT to initiate a TIP project for Vinal Square improvements based on these recommendations and the final concept plan.
- 4.29** Update the parking requirements within the town's zoning bylaw to be consistent with current industry standards.

4.30 Increase the developer contribution requirements for new parking space additions under Section 53G.

Public Transportation Recommendations

4.31 Continue to monitor the progress of the Lowell to Nashua/Manchester commuter rail extension project, and further investigate and analyze the possible construction of a commuter rail station, positioning the community to take advantage of transit-oriented development opportunities should the extension project go forward.

4.32 The Town should work with the LRTA on the following transit service initiatives:

- Provide more frequent transit service along the town's major roadways including Route 110, Route 4, Route 129 and Route 27;
- Expand transit service between the High School and Route 110, Route 129 and Riverneck Road to provide improved access to after-school jobs for students;
- Provide additional transit access between the Senior Center and elderly housing;
- Provide increased transit service between the town's larger neighborhoods and its major retail and business areas;
- Evaluate the need and impact of creating a transit hub in Chelmsford with shelter and seating;
- Establish clearly marked bus stops with shelters, posted route maps and schedules along all bus routes; and
- Extend transit service hours of operation for evenings and weekends.

Age-Friendly Recommendations

4.33 Establish a Transportation Advisory Committee to provide input on transportation-related issues, and to outline a clear process for addressing resident concerns. This committee should have representation from Planning, the Police Department, Fire Department, Engineering, DPW, BPAC, the Age-Friendly Chelmsford Implementation Committee and the town's ADA compliance official.

4.34 Increase the awareness of Chelmsford residents of the existing transportation options available to them.

4.35 Continue to assess and enhance the capabilities of existing transportation options to address the unmet needs of older/disabled residents for reliable, adequate and affordable transportation services.

V. HOUSING

INTRODUCTION

Housing reflects the characteristics of a community more than any other element of the Master Plan. The Town of Chelmsford has enjoyed a rich history of housing opportunities dating back to the late 17th century and most of the historic structures in the community are former residences. During the post-World War II era, housing developments expanded to the suburbs as federal investments in the highway infrastructure and housing industry increased. Chelmsford was one of the fastest growing communities in Massachusetts during the 1960s, with similar growth to Billerica and Tewksbury. The community's growth has become more manageable since then, although new issues related to the availability and affordability of housing in Chelmsford and the Greater Lowell region have become more critical. The increased number of affordable housing units has made the town's housing stock more diverse in terms of the number of units and their affordability. The town's future will depend upon how the changing housing needs of its residents are addressed, while maintaining the residential character of its neighborhoods.

This housing section builds upon the work completed in the *2010 Chelmsford Master Plan*, completed in October 2010, *Chelmsford Affordable Housing Plan* (January 2017) and the *Chelmsford Age-Friendly Action Plan* (January 2021). Due to the COVID-19 pandemic, the conditions in the economy and housing market at the national, state, regional and local levels have changed considerably. There needs to be a reassessment of where the Town needs to go in order to address the availability and affordability of housing for its residents. Due to the built-out nature of the community, the focus for additional housing units needs to be on redevelopment opportunities. The Commonwealth of Massachusetts has established a Housing Choice Initiative to create 135,000 additional housing units statewide by 2025 in order to support economic growth and address the housing needs of

Goal Statement: Promote the development and maintenance of diverse and affordable housing opportunities for Chelmsford residents consistent with the community's character for all income levels, lifestyles and age groups.

- *Proactively work with the Chelmsford Housing Authority, the Chelmsford Housing Advisory Board and the Community Preservation Committee to preserve existing housing and develop new housing opportunities to address the diverse housing needs of the community.*
- *Update the list of Potential Housing Sites for development as housing units for all income levels, lifestyles and age groups.*
- *Utilize the Village and Mill Reuse Overlay District as a means to encourage the redevelopment of existing sites into mixed-use, higher value properties.*
- *Secure federal and state housing funds to expand the availability of affordable housing in the community to address local housing needs.*
- *Address the housing components of the Age-Friendly Chelmsford Action Plan to address the housing needs of seniors and to encourage aging in place.*
- *Update the Town's Housing Production Plan to be submitted to the Massachusetts Department of Housing and Community Development.*

Massachusetts residents. Therefore, any housing strategy for the next ten years needs to address the issues and opportunities facing the Town, while also setting a visionary goal for the community in addressing its housing needs.

This Housing section has been divided into eight sections: Chelmsford Neighborhoods, Existing Conditions, Housing Development and Sales Trends, Housing Needs, Affordable Housing Initiatives, Public Input, Issues and Opportunities, and Recommendations. The first section describes the fabric of neighborhoods in Chelmsford from a historical development perspective and as a means to understand the residential development patterns of the community. The Existing Conditions section includes information on the Housing Inventory, Housing Age and Development Type, the Size and Condition of Housing Units, Occupancy, Tenure and Vacancy Rates, Housing Turnover and Residential Property Tax Affordability. The Housing Development and Sales Trends section focuses upon New Residential Development, Number of Sales, Median Selling Price, Zoning, Comprehensive Permits and Infrastructure Limitations Impacting Housing. The Housing Needs section provides a Demographic Profile, Housing Affordability and Foreclosures component. The section on Affordable Housing Initiatives largely summarizes the recommendations of the 2010 *Chelmsford Master Plan*, the 2017 *Chelmsford Affordable Housing Plan* and the *Chelmsford Age-Friendly Action Plan* and provides a brief overview of the support provided by the Chelmsford Housing Authority, Chelmsford Housing Advisory Board (HAB) and the Community Preservation Committee in addressing affordable housing. The Public Input section includes the input on housing from the Strengths, Weaknesses, Opportunities and Threats (SWOT) session held on May 30, 2019 and the Chelmsford Master Plan Survey. The Issues and Opportunities section summarizes the housing challenges and resources facing the community, while the Recommendations section outlines the components of an overall housing strategy for the next ten years.

CHELMSFORD NEIGHBORHOODS

Established in 1655, Chelmsford has a number of distinct neighborhoods. In addition to the Town Center (also known as Central Square or Center Village), smaller areas include South Chelmsford, West Chelmsford, East Chelmsford, North Chelmsford and the Westlands. The town has evolved in phases, as can be seen by the style and construction of its architecture, and the design and layout of its transportation infrastructure. In general, the northerly portions of the town tend to be more urban, while the south is somewhat rural in character. Like most towns in northern Massachusetts, Chelmsford has grown and changed due to regional transportation improvements, the suburbanization of employment centers, and the relatively high housing costs in the Greater Boston area.

Chelmsford Center is the oldest area of the town, where the first meetinghouse was constructed, providing a location for religious gatherings and town meetings. The community's oldest roadways converge in the Town Center. Today, the Center contains a well-preserved array of

historic period buildings in an authentic village setting. It remains the civic center of the town and contains many small retail and professional businesses that serve the community.



Victorian-style single-family home located at 35 Newfield Street in North Chelmsford. Source: Chelmsford Historical Commission

During the 1800s, other settlements within the community grew around the mill complexes in North and West Chelmsford that were centered on Stony Brook. These two historic neighborhoods have fairly compact development patterns and provide more housing choices than many other areas of town. Much of the worker housing and industrial buildings within North Chelmsford remain and continue

to be well-utilized.

Row houses and cottages of simple late Federal/Green Revival style architecture surround the Vinal Square area. North Chelmsford has historically been Chelmsford's mill village neighborhood, and contains some municipal buildings, such as the Old North Town Hall and the McKay Library, as well as a broad array of small retail and service oriented businesses. This neighborhood continues to be one of the most densely developed portions of the town, with relatively compact housing development surrounding Vinal Square.

West Chelmsford has evolved around the mills that located along Stony Brook. A scythe factory and worsted yarn mill were once located here and provided jobs for residents of the village. Homes of late Greek Revival and Italianate design can still be found at the southern edge of the neighborhood.

East Chelmsford was largely settled as a result of the economic influence brought by the development of commerce in the City of Lowell. Those associated with the business activities within the City and desiring a less urban lifestyle chose to settle in the East Chelmsford neighborhood. Similarly, the Westlands neighborhood was largely established by those commuting to jobs within the City.

South Chelmsford was established as a quiet agrarian hamlet and contained a school, church and store. D.P. Byam once manufactured sleds and sleighs in this neighborhood, and Daniel Gage harvested ice from Hearts Pond. High style suburban houses can be found south of the Center along Acton Road, High Street, Bartlett Street and Boston Road. Much of the landscape within South Chelmsford has retained its agricultural and rural character. The area along Hearts Pond

was once transformed into a typical neighborhood of summer cottages located on small lots. Today, most of these homes have been winterized and are occupied year-round.

EXISTING CONDITIONS

This section examines existing conditions of the local housing stock and includes an analysis of total housing unit growth and an examination of residential property development by size, condition, and assessed value. Occupancy, housing tenure and turnover, and affordability are also explored.

Housing Inventory

This section examines changes in the local housing stock over time, including changes in the total number of units, historical development patterns, the size and condition of the local housing stock, and housing tenure/turnover trends. According to the 2000 U.S. Census, there were 13,025 housing units in Chelmsford. Approximately 78.4% of these units (10,218) were single-family; 3.3% (425) were two-family homes, 2.2% (285) were three or four units, 6% (778) had five to nineteen units, and 8.1% (1,053) were in buildings with twenty or more units. Mobile homes comprised the remaining 2% of total housing units.

Table 5.1 shows that the total number of housing units in Chelmsford has grown steadily since 1990. In 1990, there were 11,812 units of housing (78.9% single-family homes), while ten years later, the total number of units had risen by 10.3% to 13,025 total units (78.4% single-family homes). Between 2000 and 2014-2018, 957 additional units (a 7.3% increase) were added to the town's housing stock, bringing the total number of units to 13,982. This housing growth reflected an 18.4% increase in the total number of housing units between 1990 and 2014-2018.

Table 5.1: Numbers and Types of Units, 1990, 2000 and 2014-2018

Housing Type	Year			Percent Change 2000-2014/2018
	1990	2000	2014-2018	
1-unit, detached	8,398	9,074	9,530	5.0
1-unit, attached	926	1,144	1,062	-7.2
2 units	421	425	427	0.5
3 or 4 units	241	285	260	-8.8
5 to 9 units	207	249	181	-27.3
10 to 19 units	648	529	818	54.6
20 or more units	647	1,053	1,519	44.2
Mobile home	239	266	185	30.5
Total housing units	11,812	13,025	13,982	7.3

Source: 1990 and 2000 U.S. Census and 2014-2018 American Community Survey

One significant trend during this time has been the increase in multifamily housing. Between 2000 and 2014-2018, the total number of 20+ unit structures increased by 37.5%-- from 1,053 units to 1,519 units. Another notable change was the decrease in the number of 3-4 and 5-9 family homes between 2000 and 2014-2018. During this period, the number of 3-4 family homes decreased by 25 units, or 8.8%, while the 5-9 family homes decreased by 27.3%, or 68 units. As outlined in the *2010 Chelmsford Master Plan* and the *2017 Chelmsford Affordable Housing Plan*, there is a need to continue the diversification of the town's housing stock and provide moderate density, multifamily housing to increase affordable housing opportunities for Chelmsford residents.

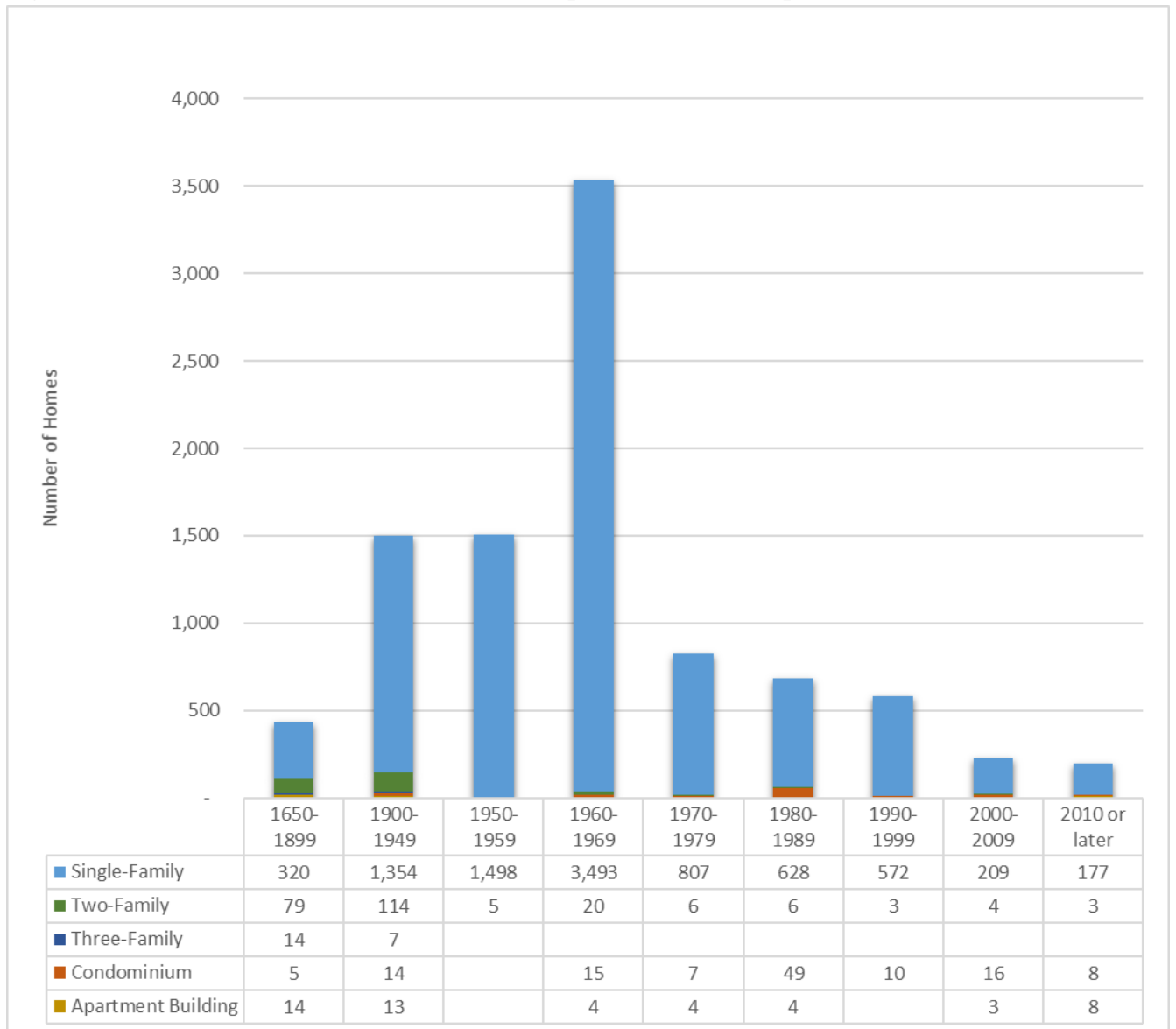
Housing Age and Development Type

Based upon the Assessor's Fiscal Year 2021 property assessment database (August 25, 2020, extract), the NMCOG GIS staff developed Figure 5.1 on the next page, which breaks down residential properties by the type of housing structure (based on the land use code) and the period during which the structure was built. This data reflects the 9,493 residential properties constructed since 1650 with the most significant housing growth occurring between 1950 and 1969 when 5,035 residential properties, or 53.2% of all residential properties were developed.

Between 1650 and 1949, 1,934 residential properties were developed. This period had the most two-family and three-family properties developed. While single-family properties comprised 86.6% of all properties developed, two-family properties comprised nearly 10% of developed properties, which was higher than any other period. Between 1970 and 2009, 2,328 residential properties were developed with 95.2% being single-family residences. From 2010 until June 1, 2020, 196 properties were developed with 177 properties, or 92.2%, designated as single-family residences. Overwhelmingly the residences that have been built in Chelmsford since 1650 have been single-family residences.

By 1950, 80.4% of the present total two-family housing stock, 100% of the three-family housing, and 54% of the total apartment building stock had been constructed. Since 1950, forty-two (42) two-family homes, one hundred five (105) condominiums, and twenty-three (23) apartment buildings have been built, compared to the 7,384 single-family houses constructed during the same time period.

Figure 5.1: Year Structure Was Built for all Developed Residential Properties



Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020, extract) linked to GIS parcel records.

Map 5.1: Age of Housing Stock

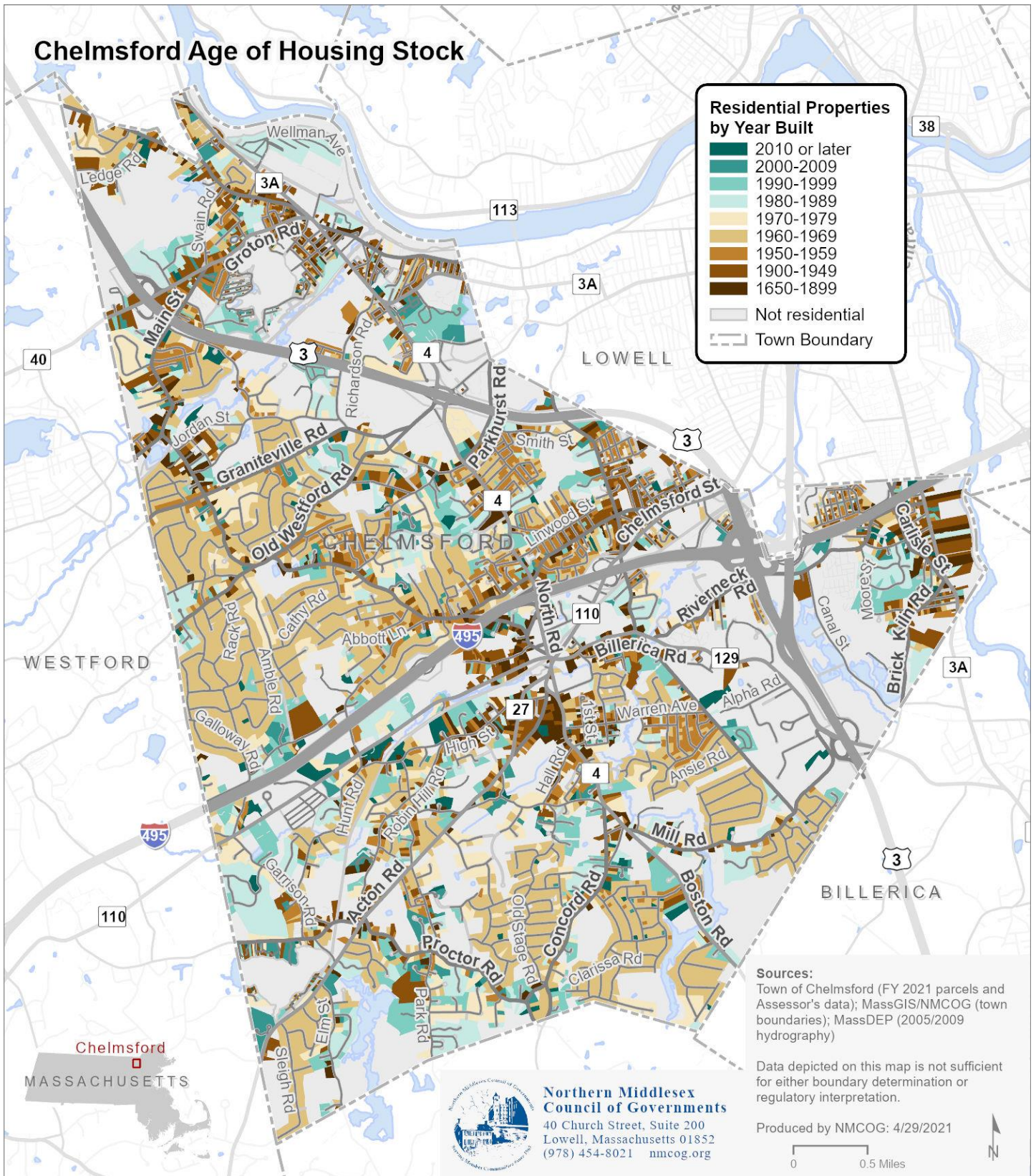


Table 5.2 below further examines residential properties by determining the number of parcels, total acreage and average acreage dedicated to each residential land use. The number of parcels broken out by land use are the same as that shown in Figure 1.

Table 5.2: Residential Properties by Land Use

Land Use	Number of Parcels	Percent of Total Parcels	Total Acreage	Average Acreage
Single-Family	9,058	95.4	6,992	0.8
Two-Family	240	2.5	167	0.7
Three-Family	21	0.2	21	1.0
Condominiums	124	1.3	415	3.3
Apartment Building	50	0.5	78	1.6
Total Residential Parcels	9,493	99.9	7,673	0.8

Source: Chelmsford Assessor's Fiscal Year 2021 property assessment database (8/25/2020 extract) linked to GIS parcel boundary area

According to the FY 2021 assessor database, 95.4% of the 9,493 parcels with a residential land use were dedicated to single-family housing. Two-family housing comprised an additional 2.5%, while condominiums represented 1.3% of the total. Each of the remaining residential land uses comprised less than 1% of the total number of residential properties. In



Traditional single-family home built in 1877 and located at 142 School Street in western Chelmsford. (Source: Chelmsford Historical Commission)

terms of acreage and average lot sizes, single-family properties amounted to 6,992 acres, or 91.1% of the 7,673 acres of land used for residential uses. The condominiums were distributed across one hundred twenty-four (124) parcels.

Size and Condition of Housing Units

Although the vast majority of housing units in Chelmsford are traditional single-family homes, there are a number of multi-family homes, apartment buildings, and condominiums, as well. This section examines several characteristics of the local housing stock, including land and living areas, bedroom and bathroom characteristics, and appraised property values.

Single-Family Housing Units

Historic homes, particularly those built before 1900, have assessed building and total values that are closer to the assessed values of homes built after 1960. These similarly appraised values are reflective of the average lot sizes and average living areas of the homes built during these periods. As outlined in Table 5.3, single-family homes built before 1900 have an average lot size of 1.0 acres, an average living space of 2,238 square feet, and an average total appraised value of \$442,711. Similarly, single-family homes built in the five decades since 1970 have average lot sizes equal to or greater than one acre, and average living spaces ranging from 1,899 square feet to 2,833 square feet. The average total values for single-family homes ranged from \$480,873 in the 1970s to \$689,219 for 2010 and later. The largest single-family homes were built between 2000 and 2009 with an average living space of 2,833 square feet, including two stories and eight rooms, and an average total assessed value of \$664,305 in FY 2021. Conversely, single-family homes built between 1900 and 1949, and 1950 and 1959, are significantly smaller, with average lot sizes of 0.6 and 0.5 acres and average living spaces of 1,634 square feet and 1,565 square feet respectively. Correspondingly, their average appraised values are lower, with homes between 1900 and 1949 valued at \$379,895 and homes built between 1950 and 1959 valued at \$403,092. These appraisals are detailed in Table 5.3.

Table 5.3: Characteristics of Single-Family Homes by Age of Housing Unit

Period	Properties	Land Value*	Building Value*	Total Value	Lot Area (Acres)*	Living Area (sq.ft.)	Stories	Rooms
1650- 1899	320	\$218,949	\$217,495	\$442,771	1.0	2,238	2	8
1900-1949	1,354	\$203,786	\$172,815	\$379,895	0.6	1,634	2	6
1950-1959	1,498	\$213,812	\$186,598	\$403,092	0.5	1,565	1	6
1960-1969	3,493	\$234,197	\$200,054	\$437,467	0.7	1,666	1	7
1970-1979	807	\$239,673	\$237,130	\$480,873	1.0	1,899	2	7
1980-1989	628	\$244,581	\$296,374	\$545,284	1.2	2,304	2	8
1990-1999	572	\$228,557	\$319,073	\$550,790	1.1	2,343	2	8
2000-2009	209	\$236,572	\$423,510	\$664,305	1.0	2,833	2	8
2010 or later	177	\$236,475	\$449,906	\$689,219	1.0	2,695	2	8
Total	9,058	\$226,692	\$221,912	\$452,012	0.8	1,819	1	7

Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020, extract) linked to GIS parcel records.

Two-Family Housing Units

Table 5.4 summarizes the characteristics of two-family homes in Town. According to the FY 2021 property assessment database, there are 240 two-family structures dating back to the turn of the 18th century. Presumably, a portion of these houses began as single-family homes and were converted into multi-family dwellings at a later date.

The table below shows that two-family housing development peaked between 1900 and 1949, when one hundred fourteen (114) properties were developed.



Historic two-family home located at 46-48 Littleton Road.
(Source: Chelmsford Historical Commission)

However, the major activity occurred between 1900 and 1929 and then dropped significantly during the Great Depression and World War II. Between 1950 and 1969, twenty-five (25) properties were developed. Since 1970, only twenty (20) properties have been developed for two-family housing units, representing less than one percent of single-family development since 1970 (2,393 properties). Table 4 provides information on the properties, lot areas and land, building and total values.

Table 5.4: Characteristic of Two-Family Homes by Age of Housing Unit

Period	Properties	Land Value	Building Value	Total Value	Lot Area	Living Area	Stories	Rooms
1650- 1899	79	\$204,389	\$205,673	\$413,748	0.6	2,561	2	9
1900- 1949	114	\$195,283	\$188,135	\$387,330	0.7	2,293	2	9
1950-1959	5	\$211,340	\$220,800	\$436,600	0.7	2,714	2	11
1960-1969	20	\$212,990	\$175,985	\$391,595	0.6	2,210	2	10
1970-1979	6	\$213,200	\$178,633	\$393,650	0.6	2,122	2	10
1980-1989	4	\$200,075	\$177,800	\$378,650	2.4	2,259	2	6
1990-1999	3	\$224,233	\$344,900	\$572,433	0.8	4,113	2	13
2000-2009	4	\$221,750	\$420,900	\$647,475	0.7	2,960	2	11
2010 or later	3	\$255,700	\$428,600	\$685,800	0.3	2,025	2	8
Total	238	\$202,893	\$246,944	\$453,789	0.7	2,409	2	9

Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020 extract) linked to GIS parcel records.

Overall, the average lot size for two-family homes has changed somewhat, ranging between 0.3 acres from 2010 or later to 2.4 acres between 1980 and 1989. Similarly, the average living area and the average number rooms have remained fairly consistent over time, with average living

area ranging between 2,025 square feet (2010 or later) and 4,113 square feet (1990-1999), and the average number of rooms ranging between 6 and 13.

Three-Family Housing Units

Based on the FY 2021 property assessment database, there are only twenty-one (21) three-family homes in Chelmsford. Fourteen of the houses were built during the 19th century. Seven additional properties were developed between 1900 and 1949. Three-bedroom homes built prior to 1900 have an average living area of 3,334 square feet, while homes built during the 20th century have an average living area of 2,238 square feet. These characteristics are reflected in Table 5.5.

Table 5.5: Characteristics of Three-Family Homes by Age of Housing Unit

Period	Properties	Land Value	Building Value	Total Value	Lot Area (Acres)	Living Area (sq. ft.)	Stories	Rooms
1650-1899	14	\$220,721	\$310,571	\$536,086	1.3	3,334	2	12
1900-1949	7	\$181,929	\$174,886	\$360,986	0.4	2,238	2	11
Total	21	\$207,790	\$265,343	\$477,719	1.0	2,969	2	12

Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020, extract) linked to GIS parcel records.

Apartment Buildings

According to the FY 2021 property assessment database, there are only 50 apartment buildings. Table 5.6 below reveals that the period between 1650 and 1899 saw the greatest amount of apartment properties (14) developed, but the greatest amount of apartment units developed was 776 units between 1960 and 1969. In the past, apartments could be four or more units.

Table 5.6: Characteristics of Apartment Buildings by Age of Housing Unit

Period	Properties	Units	Land Value	Building Value	Total Value	Lot Area (acres)	Living Area (sq. ft.)	Stories	Rooms
1650-1899	14	77	\$220,129	\$380,171	\$602,021	0.4	4,886	2	13
1900-1949	13	55	\$196,362	\$299,954	\$497,738	0.3	3,815	2	13
1960-1969	4	776	\$1,241,100	\$2,328,300	\$3,588,800	1.9	31,619	3	-
1970-1979	4	55	\$570,450	\$1,635,425	\$2,223,575	2.7	14,346	2	6
1980-1989	4	209	\$1,383,750	\$5,371,475	\$6,798,700	5.7	18,826	3	-
2000-2009	3	268	\$2,233,333	\$10,566,400	\$12,913,433	4.0	28,191	2	-
2010 or later	8	383	\$1,425,688	\$8,343,950	\$9,832,813	1.9	18,771	2	-
Total	50	1,823	\$730,424	\$2,900,268	\$3,654,920	1.6	12,238	2	8

Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020 extract) linked to GIS parcel records.

Many of the older structures have been converted into apartments over time, whereas the properties developed after 1950 remained larger, apartment-complex style housing. This trend is reflected in the size and value statistics for apartment properties listed in Table 6. Apartment buildings constructed prior to 1900 have an average lot size of .4 acres. The average total living area for apartment buildings constructed prior to 1900 and between 1900 and 1949 was 4,886 square feet and 3,815 square feet respectively.



Four-unit apartment building built in 1880 and located at 144 Gorham Street. (Source: Pictometry International, 2008)

After 1950, apartment building size increased significantly. The average lot size since 1950 ranged from 1.9 to 5.7 acres. Additionally, the average living area increased by more than eight times 1900-1949 and 1950-1969. Over time, the scale of apartment buildings has increased, while architectural design elements have become less important, as seen in many of the newer apartment buildings today.

Condominiums

According to the FY 2021 property assessment database, there were 2,813 condominiums in Chelmsford. Most of these condominiums were built prior to 1990 with 43.2% of them built between 1980 and 1989. The Lot Area for these condominiums ranges from 0.4 acres in properties built between 1650 and 1899 to 7.1 acres in properties built between 1970 and 1979. The average living area for these properties ranges from 1,068 square feet in those units built between 1950 and 1960 to 1,573 square feet for properties built between 2000 and 2009. The total value of these properties averages between \$125,539 in those units built between 1950 and 1969 to \$338,721 for units built in 2010 or later. The characteristics of the condominium units are shown in Table 5.7 on the next page.

Table 5.7: Characteristics of Condominium Units by Age of Housing Unit

Period	Properties	Land Value	Building Value	Total Value	Lot Area (acres)	Living Area (sq. ft.)	Rooms
1650-1899	21	NA	\$198,276	\$198,662	0.4	1,330	5
1900-1949	53	NA	\$167,987	\$168,477	0.6	1,123	4
1950-1969	341	NA	\$125,532	\$125,539	1.7	1,068	4
1970-1979	273	NA	\$256,577	\$257,564	7.1	1,432	5
1980-1989	1,214	NA	\$248,485	\$249,538	4.1	1,403	5
1990-1999	431	NA	\$311,837	\$312,715	6.6	1,366	5
2000-2009	326	NA	\$305,351	\$306,448	3.3	1,573	6
2010 or later	154	NA	\$338,251	\$338,721	1.1	1,276	5
Total	2,813	NA	\$253,685	\$254,535	3.3	1,366	5

Source: Assessor's Fiscal Year 2021 property assessment database (Au535gust 25, 2020, extract) linked to GIS parcel records.

Occupancy, Tenure, and Vacancy Rates

This section analyzes trends in housing occupancy, ownership and rental tenure, vacancy rates, and housing turnover. Where appropriate, Chelmsford's statistics are compared to other communities in the Greater Lowell region. Chelmsford has historically had an owner-occupied housing stock. In 2000, the U.S. Census Bureau reported that there were 12,812 occupied housing units in Chelmsford, as shown in Table 5.8. Nearly 84% (83.9%) or 10,743 units, were owner-occupied, while 16.1% (2,069 units) were renter-occupied. An additional 213 units, or 1.7% of the overall housing stock, were vacant. According to the 2014-2018 American Community Survey, there were 13,626 occupied housing units in Chelmsford, which represented an overall increase of 6.4%. The vacant housing stock increased by 143 units, or by 67.1%, and represented 2.5% of the total housing stock. The ratios for owner-occupied and renter-occupied units remained the same, although the overall numbers increased by 6.4% and 6.1% respectively.

Table 5.8: Housing Tenure and Vacancy in Chelmsford, 2000-2014/2018

	2000		2014-2018		Percent Change 2000-2014/2018
	Number of Units	Percent of Total	Number of Units	Percent of Total	
Owner Occupied	10,743	83.9	11,431	83.9	6.4
Renter Occupied	2,069	16.1	2,195	16.1	6.1
Vacant	213	1.7	356	2.5	67.1
Total Occupied Housing Units	12,812	100.0	13,626	100.0	6.4

Source: 2000 U.S. Census and 2014-2018 American Community Survey

When compared with the other communities in the Greater Lowell region, Chelmsford had the third highest number of housing units (13,982 units) in 2014-2018, trailing only the City of Lowell (41,303) and Billerica (15,286). Overall, the Chelmsford housing stock represented 12.4% of the total housing units in the Greater Lowell region. In terms of occupied housing

units, Chelmsford ranked third as well, comprising 12.6% of the total occupied housing units in the region. Table 5.9 below shows that among occupied housing units, Chelmsford had the fourth highest percentage of owner-occupied housing units at 83.9%, trailing only Dunstable (96.6%), Westford (86.6%) and Tewksbury (85.7%). The number of owner-occupied housing units in Chelmsford comprised 15.4% of the total number in the region. As expected, when focused upon the percentage of renter-occupied units, Chelmsford ranked sixth at 16.1% ahead of Tewksbury (14.3%), Westford (13.4%) and Dunstable (3.4%). The City of Lowell had the highest percentage of renter-occupied units at 57.6%. Chelmsford had the sixth highest housing vacancy rate at 2.5% in 2014-2018. The City of Lowell (6%) had the highest housing vacancy rate, while only Tewksbury (2%), Tyngsborough (1.6%) and Dunstable (1%) had lower housing vacancy rates. The number of vacant units in Chelmsford represented 7.8% of the entire region.

Table 5.9: Housing Tenure and Vacancy Rates in Northern Middlesex Communities

Community	Total Housing Units	Total Occupied Housing Units	Owner Occupied		Renter Occupied		Vacant Units	
			Number	Percent	Number	Percent	Number	Percent
Billerica	15,286	14,771	11,807	79.9	2,964	20.1	515	3.4
Chelmsford	13,982	13,626	11,431	83.9	2,195	16.1	356	2.5
Dracut	11,619	11,274	8,924	79.2	2,350	20.8	345	3.0
Dunstable	1,151	1,140	1,101	96.6	39	3.4	11	1.0
Lowell	41,303	38,829	16,454	42.4	22,375	57.6	2,474	6.0
Pepperell	4,559	4,338	3,425	79.0	913	21.0	221	4.8
Tewksbury	11,893	11,655	9,985	85.7	1,670	14.3	238	2.0
Tyngsborough	4,492	4,422	3,703	83.7	719	16.3	70	1.6
Westford	8,683	8,350	7,231	86.6	1,119	13.4	333	3.8
Region	112,968	108,405	74,061	68.3	34,344	31.7	4,563	4.0

Source: 2014-2018 American Community Survey

Table 5.10 examines housing tenure by the number of units in a structure in 2000 and 2014-2018. According to this data, the number of homeowners living in single-family detached units increased by 5.3% between 2000 and 2014-2018, while the number of renters living in single-family detached units decreased by 31.7%. Conversely, the number of owners living in attached single-family homes decreased by 18.7%, while the number of renters living in attached single-family homes increased by 13.8% during the same time period.

While the number of homeowners living in two-unit structures increased by 59.5% between 2000 and 2014-2018, the number of renters living in two-unit structures decreased by 27.7%. In the case of three- or four-unit structures, the number of homeowners increased by 23.7% and the number of renters decreased by 30.4% between 2000 and 2014-2018. For those structures with 5-9 units, the number of homeowners declined by 18% and the number of renters decreased by 18.2% between 2000 and 2014-2018. Due partially to the increase in the construction of condominiums and larger apartment communities, the number of owner and renter households living in structures with 10 or more units increased by 85.3% and 31.3% respectively.

Table 5.10: Housing Tenure by Number of Units in Structure

	Owner Occupied			Renter Occupied		
	2000	2014-2008	Percent Change	2000	2014-2008	Percent Change
Total Units	10,744	11,431	6.4	2,068	2,195	6.1
1, detached	8,692	9,156	5.3	271	185	-31.7
1, attached	1,000	813	-18.7	116	132	13.8
2	131	209	59.5	271	196	-27.7
3 or 4	114	141	23.7	171	119	-30.4
5 to 9	89	73	-18.0	132	108	-18.2
10 or more	484	897	85.3	1,075	1,412	31.3
Mobile home or other type	234	142	-39.3	32	43	34.4

Source: 2000 U.S Census and 2014-2018 American Community Survey

Housing Turnover

In assessing the housing turnover in a community, it is important to compare the year that householders moved into their home. Table 5.11 compares the year that Chelmsford householders moved into their current home with similar data for neighboring communities in the Greater Lowell region. Although this data does not identify households that have moved within the Town (and therefore have been residents longer than they have owned their current home), it is useful in understanding how long households have been established in Chelmsford.

Based upon data from the *2015-2019 American Community Survey*, Chelmsford has a diverse mix of both long time and newer residents. Approximately 17.9% of Chelmsford households (6,265) moved to their house in 1989 or earlier, while 18.4% moved between 1990 and 1999. Additionally, 28% of residents moved to their current household between 2000 and 2009 and 20.6% moved between 2010 and 2014. The remaining 5,257 households (15%) have moved into their homes since 2014. In other words, more than a third of Chelmsford households (36.3%) moved to their current home before 2000, indicating that Chelmsford is a stable and mature community.

Compared to some other communities in the region, Chelmsford had the third highest proportion of households who had moved to their home in 2017 or later (6.3%), trailing only the City of Lowell (10.5%) and Westford (6.7%). These statistics point to a diverse mix of households living in Chelmsford, including older, long-time residents, middle-aged households and families, and families who have recently settled in Town. Understanding demographic trends such as these is important in understanding the types and size of housing that will be needed when developing specific housing goals.

Table 5.11: Year Householder Moved Into Current Home by Community

	Billerica		Chelmsford		Dracut		Lowell		Tewksbury		Westford	
	#	%	#	%	#	%	#	%	#	%	#	%
Population in Occupied housing units	41,822	100.0	34,988	99.9	31,348	100.0	106,570	99.9	30,423	100.0	24,333	100.1
2017 or later	2,249	5.4	2,196	6.3	1,768	5.6	11,239	10.5	1,527	5.0	1,622	6.7
2015 to 2016	4,983	11.9	3,061	8.7	3,885	12.4	17,357	16.3	3,314	10.9	2,509	10.3
2010 to 2014	7,393	17.7	7,224	20.6	6,510	20.8	31,140	29.2	6,223	20.5	5,245	21.6
2000 to 2009	10,924	26.1	9,803	28.0	7,238	23.1	26,416	24.8	7,741	25.4	6,816	28.0
1990 to 1999	7,980	19.1	6,439	18.4	5,834	18.6	11,341	10.6	5,223	17.2	5,221	21.5
1989 or earlier	8,293	19.8	6,265	17.9	6,113	19.5	9,077	8.5	6,395	21.0	2,920	12.0

Source: 2015-2019 American Community Survey

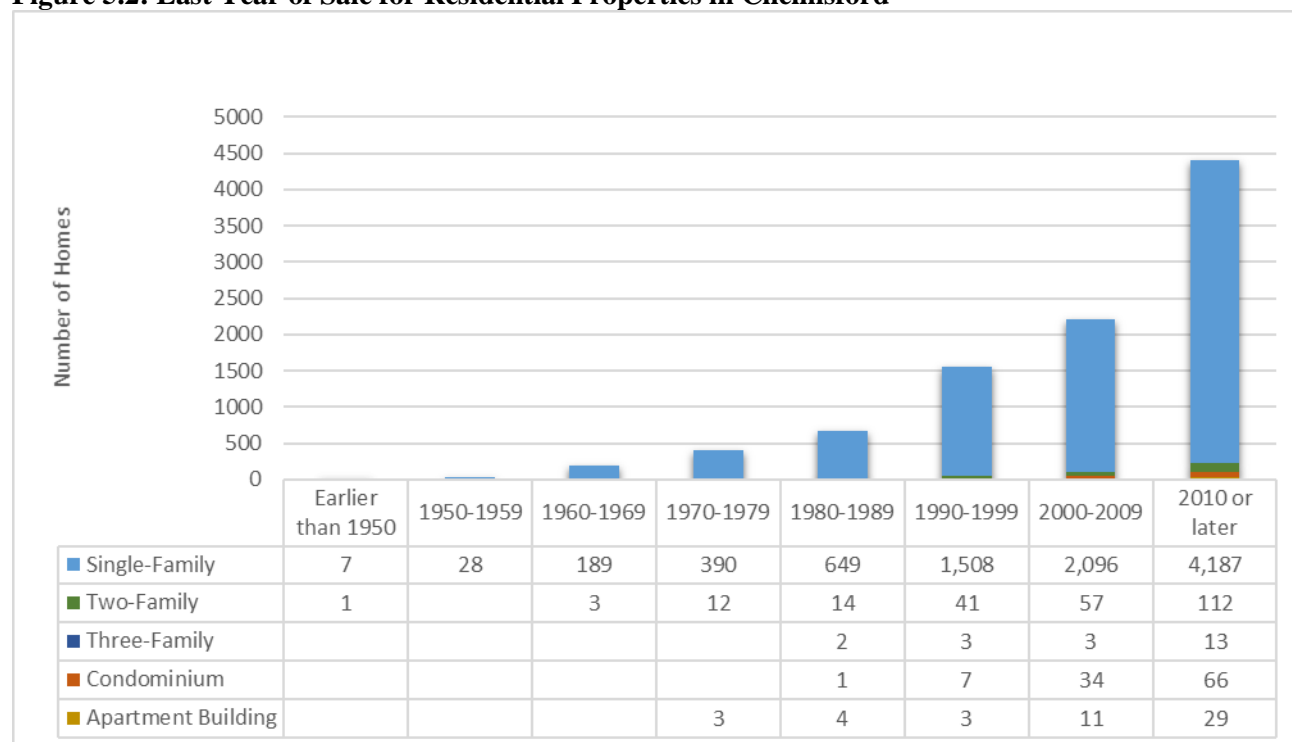
Based upon the Assessor's Fiscal Year 2021 property assessment database, Table 5.12 and Figure 5.2 on the following page reflects the most recent year of sale for residential properties by housing type. This information is consistent with the *2014-2018 American Community Survey* data related to the period in which residents moved into their homes. Based upon the data, 228 homes were last sold before 1970, 2,637 homes were sold between 1970 and 1999 and 6,608 homes were sold since 2000.

Table 5.12: Last Year of Sale for Residential Properties

	Earlier than 1950	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010 or later	Total
Single-Family	7	28	189	390	649	1,508	2,096	4,187	9,054
Two-Family	1		3	12	14	41	57	112	240
Three-Family	--	--	--	--	2	3	3	13	21
Condominium	--	--	--	--	1	7	34	66	108
Apartment Building	--	--	--	3	4	3	11	29	50
Total	8	28	192	405	670	1,562	2,201	4,407	9,473

Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020, extract) linked to GIS parcel records. Excludes twenty parcel records missing last sale date.

Figure 5.2: Last Year of Sale for Residential Properties in Chelmsford



Source: Assessor's Fiscal Year 2021 property assessment database (August 25, 2020, extract) linked to GIS parcel records. Excludes twenty parcel records missing last sale date.

Residential Property Tax Affordability

Table 5.13 shows how affordable Chelmsford's residential tax rates are relative to other communities in the region for 2014-2018. Affordability is determined in two ways: by calculating per capita taxes levied as a percent of per capita income and by calculating the average single-family tax bill as a percent of median household income.

Chelmsford's estimated total population in 2014-2018 was 35,126 residents (the third highest in the region), and its per capita income was \$52,578 (the third highest in the region). In FY 2019 the Town collected a total of \$84,642,474 in residential property taxes, or \$2,409.68 per capita. Per capita taxes as a percent of per capita income equaled 4.6%-- the fourth highest rate in the region behind Westford (5.5%), Dunstable (5%) and Tewksbury (5%). The remaining five communities had residential levies of between 3.7% and 4.3% of per capita income. In other words, in terms of per capita expenses, Chelmsford fell within the bottom third tier of tax affordability, with five of nine communities considered to have more affordable residential property taxes in FY 2019.

Table 5.13: Indicators of Residential Property Tax Affordability

Community	Total Population	Total Residential Taxes Levied	Per Capita Income in 2019	Per Capita Taxes Levied/ Per Capita Income	Average Annual Tax Bill	Median Household Income in 2019	Average Single-Family Tax Bill/ Median Household Income
Billerica	43,200	\$76,851,264	\$41,174	4.3%	\$5,663	\$105,343	5.4%
Chelmsford	35,126	\$84,642,474	\$52,578	4.6%	\$7,411	\$116,111	6.4%
Dracut	31,373	\$49,111,591	\$38,365	4.1%	\$5,028	\$90,273	5.6%
Dunstable	3,366	\$9,537,746	\$56,854	5.0%	\$8,010	\$135,909	5.9%
Lowell	111,306	\$109,438,853	\$26,837	3.7%	\$4,404	\$56,878	7.7%
Pepperell	12,105	\$23,928,619	\$47,279	4.2%	\$6,357	\$104,130	6.1%
Tewksbury	31,908	\$72,158,576	\$45,233	5.0%	\$7,152	\$102,500	7.0%
Tyngsborough	12,364	\$26,151,954	\$48,732	4.3%	\$6,644	\$114,067	5.8%
Westford	24,342	\$74,786,061	\$56,057	5.5%	\$9,414	\$144,917	6.5%

Source: 2014-2018 American Community Survey and Massachusetts Department of Revenue's Division of Local Services reports.

In terms of calculating affordability of the average single-family tax bill as a percent of median household income, Lowell (7.7%), Tewksbury (7%), Westford (6.5%) and Chelmsford (6.4%) had the highest percentages in the region. The five other communities in the region had average single-family tax bills between 5.4% and 6.1% of their respective median household incomes.

HOUSING DEVELOPMENT AND SALES TRENDS

This section examines trends in new housing development in Chelmsford as well as trends in sales for the existing housing stock. In the first section, residential development in Chelmsford over the past decade is compared to residential development in other communities in the Greater Lowell region. In the second section, an examination of the total number of sales and median selling prices for homes over the past twenty years is offered. This is followed by a discussion of current residential zoning requirements in Chelmsford. In the fourth and fifth sections, respectively, comprehensive permits and infrastructure limitations are discussed.

New Residential Development

Table 5.14 shows the trends in new residential development in Chelmsford between 2014 and 2018 by measuring the number of residential building permits by housing type, that have been issued during the five year period. According to this data, which was accessed through MassBenchmarks, there were 126 residential building permits, encompassing 371 housing units with a total valuation of \$59,524,630, issued between 2014 and 2018. Single-family homes accounted for approximately 84.1% of all permits issued, 42.7% of property valuations (\$25,407,630), and 28.6% of the total number of units permitted. Two-family units had 11 permits, 22 units and a total valuation of \$3,515,000. Three-family buildings had three permits

in 2015 for nine units and a total valuation of \$1,352,000. Buildings with five or more units accounted for 6 permits, 234 units and a total valuation of \$29,250,000.

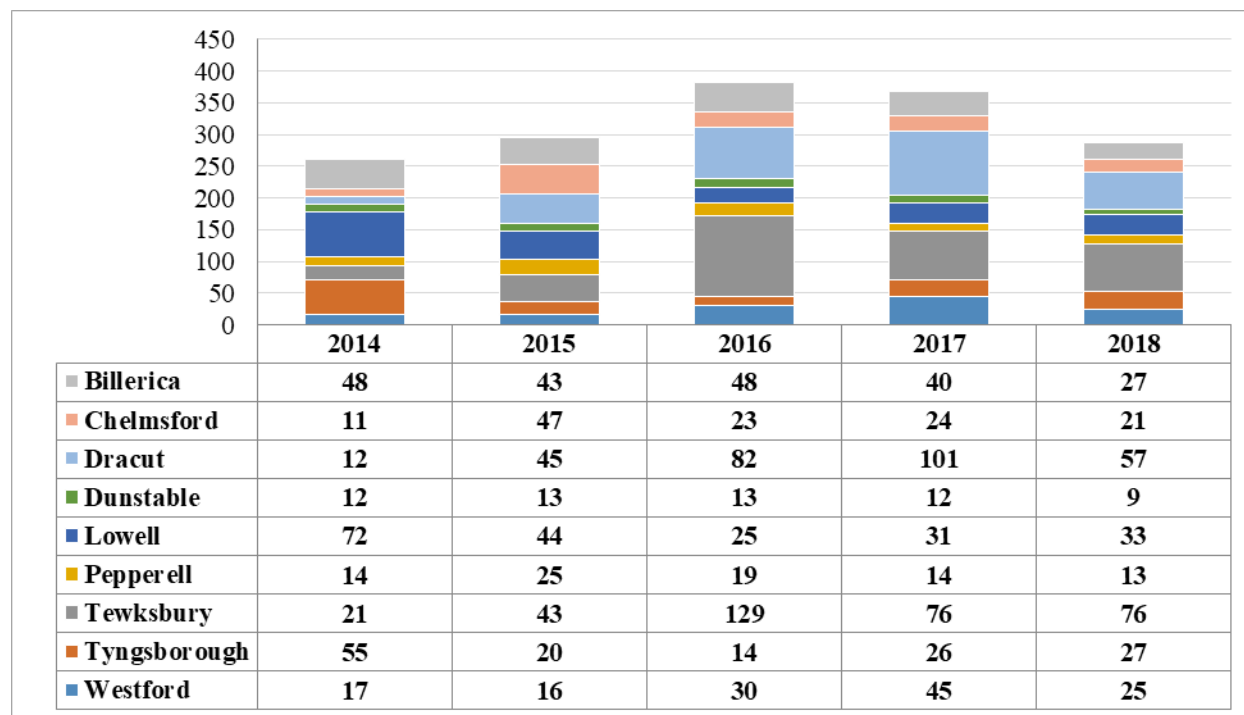
Table 5.14: Residential Building Permits Issued by Housing Type (2014-2018)

Year	Single-Family Units	Single-Family Valuation	Two- Family Buildings	Two- Family Units	Two-Family Valuation
2014	11	\$2,895,000	0	0	\$0
2015	37	\$7,358,000	7	14	\$2,555,000
2016	23	\$5,434,500	0	0	\$0
2017	18	\$4,734,130	3	6	\$710,000
2018	17	\$4,986,000	1	2	\$250,000
Total	106	\$25,407,630	11	22	\$3,515,000
Year	3 + 4 Family Buildings	3 + 4 Family Units	3 + 4 Family Valuation	5 + Family Buildings	5 + Family Units
2014	0	0	\$0	0	0
2015	3	9	\$1,352,000	0	0
2016	0	0	\$0	0	0
2017	0	0	\$0	3	108
2018	0	0	\$0	3	126
Total	3	9	\$1,352,000	6	234

Source: MassBenchmarks as of March 2020

Figure 5.3 compares the total number of residential building permits issued in Chelmsford between 2014 and 2018 to the total number of permits issued in other communities in the region.

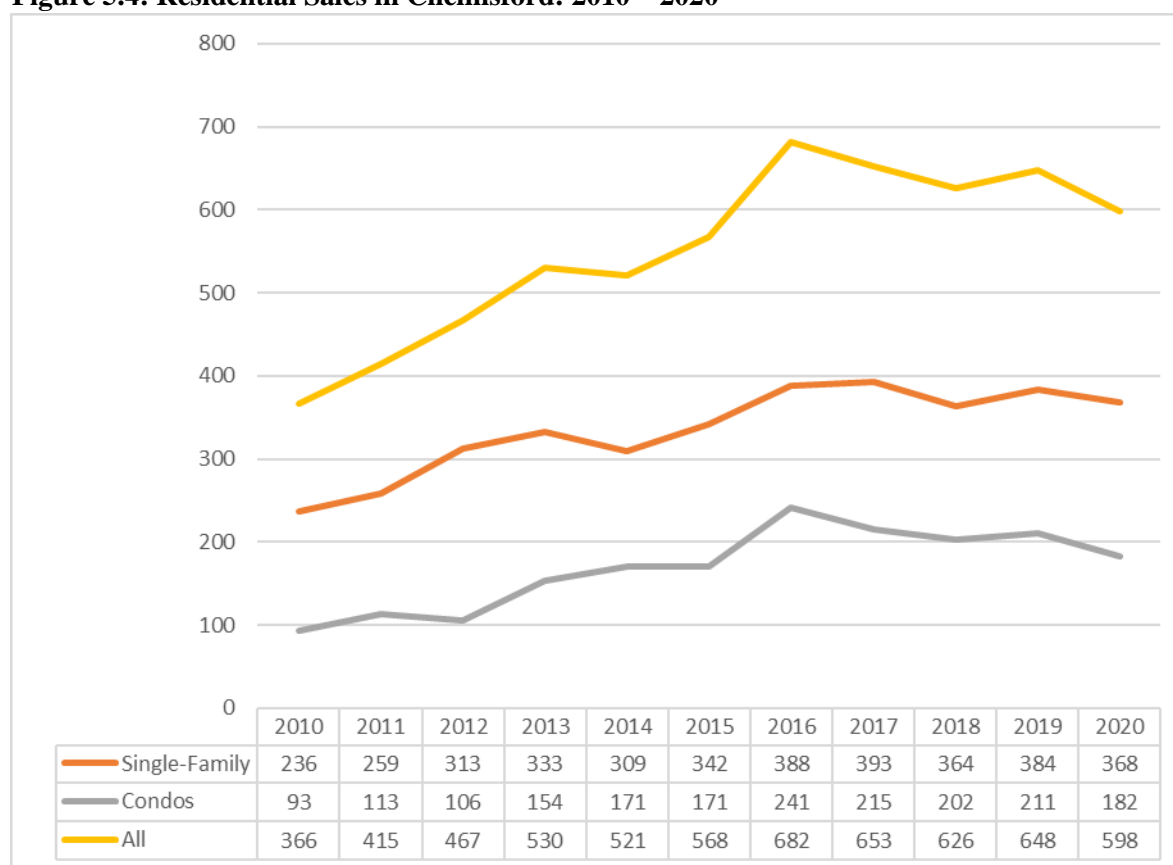
Figure 5.3: Total Residential Building Permits Issued in the Region (2014-2018)



Source: MassBenchmarks as of March 2020

Figure 5.4 below compares the total number of single-family homes, condominiums, and all residential sales made in Chelmsford between January 2010 and December 2019. Between 2010 and 2019, the total number of home sales increased by 77%. The number of single-family home sales increased from 236 sales in 2010 to 384 sales in 2019 or by 62.7%. Condominium sales increased from 93 sales in 2010 to 211 sales in 2019 or by 126.9%. This growth in housing sales reflected a rebound from the housing crisis in 2008. Chelmsford experienced its former fourteen year record low residential sales in 2009 with 247 single-family home sales and 125 condominium sales. It wasn't until 2011 that single-family home sales would recover from this low point and not until 2013 to rebound from the low condominium sales in 2009. The increase in single-family home sales hasn't been consistent – there have been dips in sales between 2013 and 2014 and 2017 and 2018. Yet, the next year these sales rebounded. Similarly with the condominium market, there was a decline in condo sales from 2011-2012 and 2016-2018.

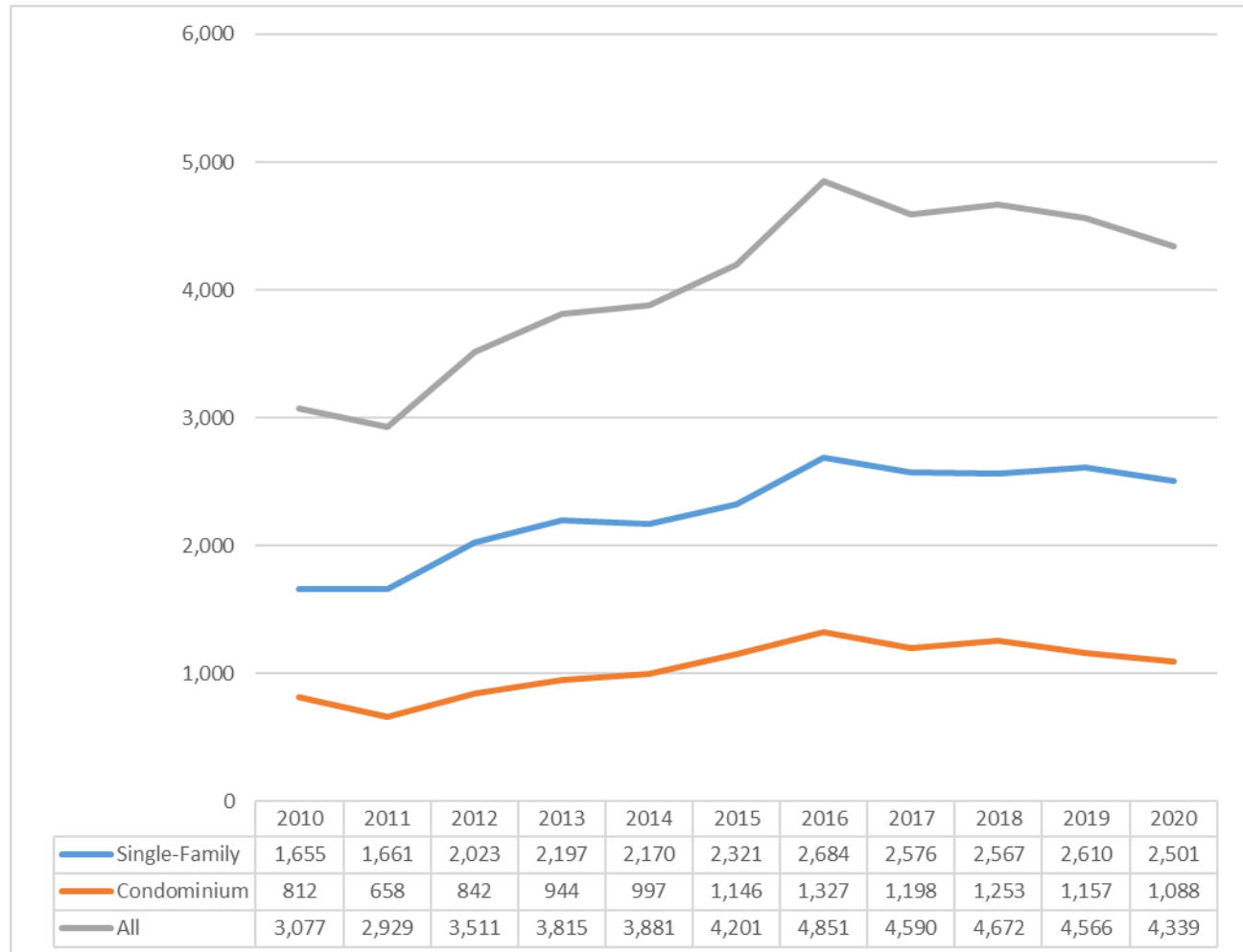
Figure 5.4: Residential Sales in Chelmsford: 2010 – 2020



Source: *The Warren Report*

Figure 5.5 shows the housing sales in the region from 2010 through 2020:

Figure 5.5: Residential Sales in the Greater Lowell Region: 2010 – 2020



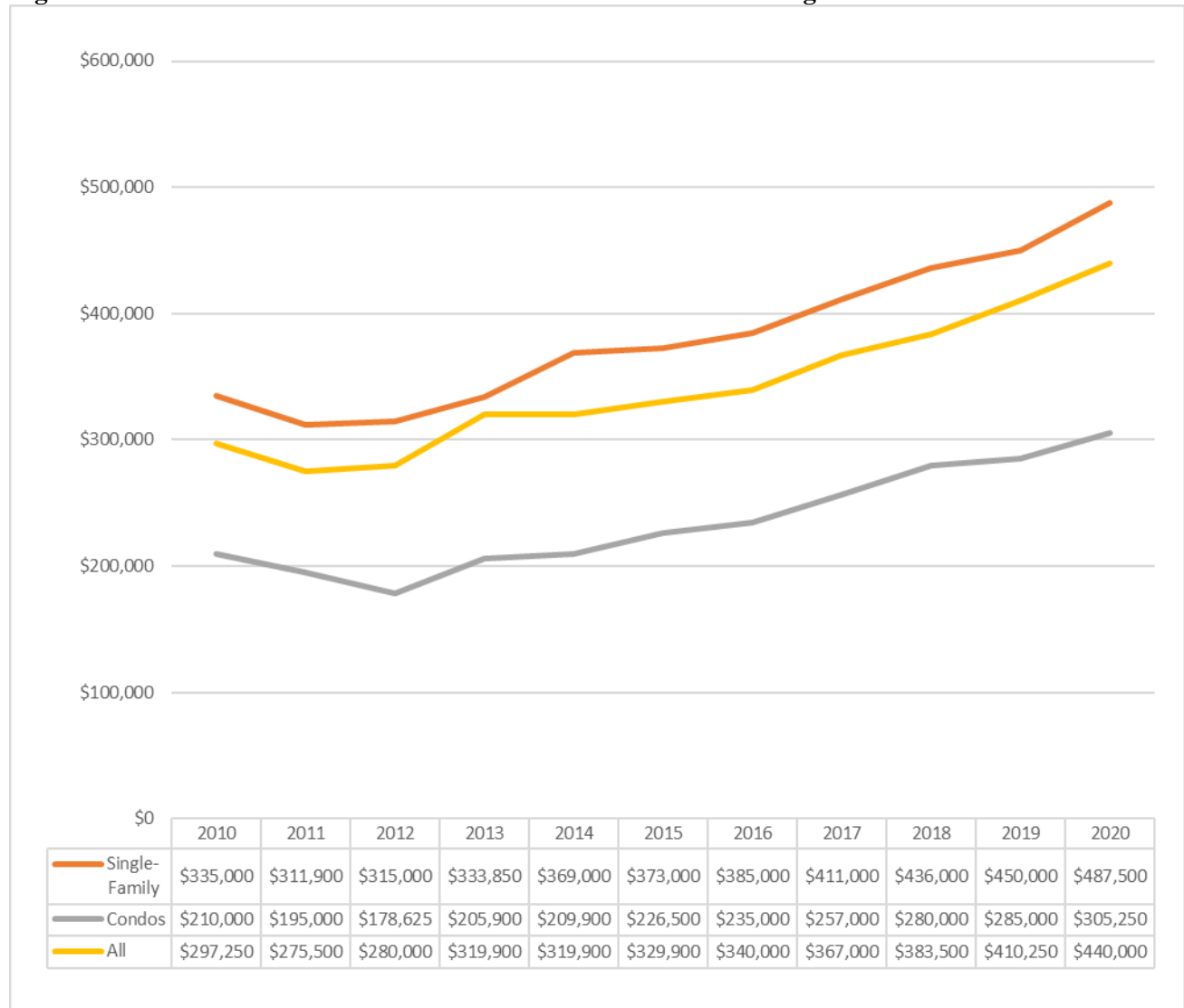
Source: The Warren Report

Median Sales Prices

Figure 5.6 on the following page illustrates the changes in the median selling price for single-family homes, condominiums, and “all sales” in Chelmsford between 2010 and 2019. Prior to the housing crisis, the peak selling price for homes in Chelmsford was in 2005 when single-family homes had a median selling price of \$373,700, the median selling price for condos was \$272,000 and “all sales” had a median selling price of \$327,000. Although the sales prices for single-family homes, condominiums and “all sales” increased between 2010 and 2019 by 34.3%, 35.7%, and 38% respectively, it was several years before these prices exceeded the sales peak in 2005. The price of single-family homes did not exceed \$373,700 until 2016, while the price of

condominiums did not exceed \$272,000 until 2018. The price of “all sales” exceeded the 2015 peak somewhat earlier in 2015 when the “all sales” figures were \$329,900. The increase in sales prices in single-family homes has not been consistent over this ten-year period, but experienced price declines between 2010 and 2011 and 2016 and 2017. Similarly, the condominium market experienced yearly price declines between 2010 and 2012 and 2016 and 2017. Overall, the “all sales” market has been consistent, except for a price decline between 2010 and 2011 and a price “pause” between 2013 and 2014.

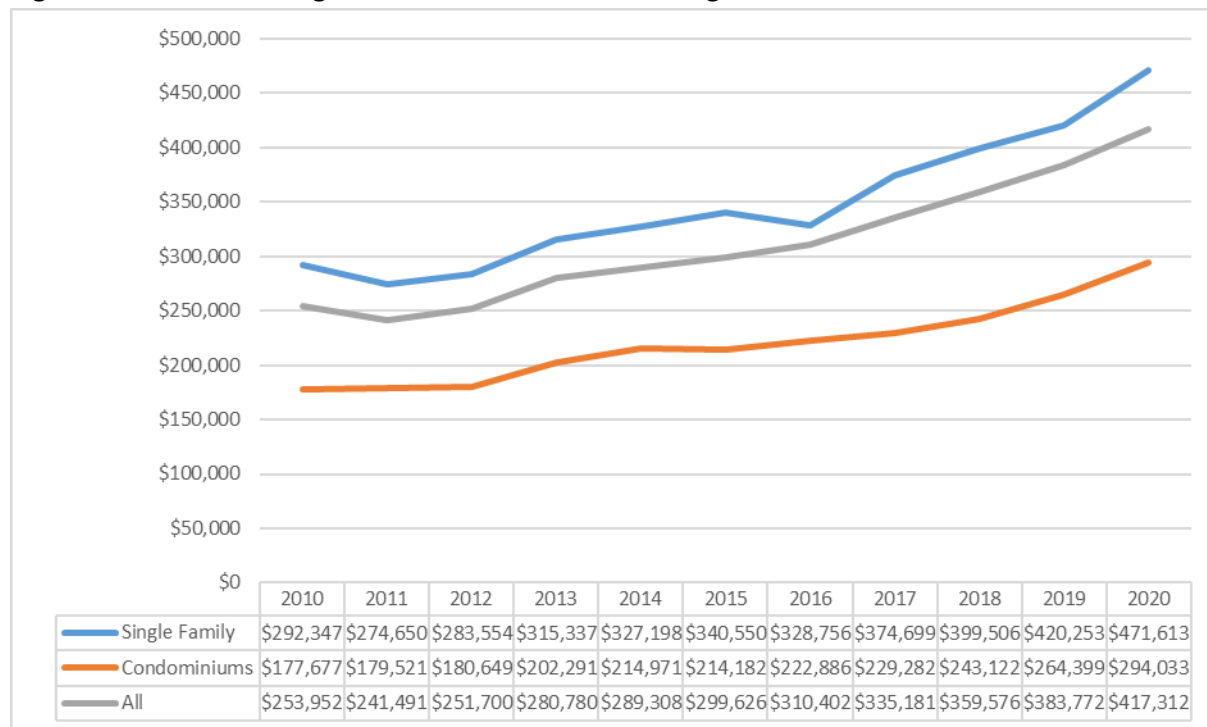
Figure 5.6: Median Sales Prices for Homes in Chelmsford: 2010 through 2020



Source: The Warren Group

Figure 5.7 shows the median sales prices in the region from 2010 through 2020:

Figure 5.7: Median Selling Prices in the Greater Lowell Region: 2010 - 2020



Source: The Warren Group

Zoning

Approximately 61% of the town is zoned for residential use, with nearly 60% of the Town zoned specifically for single-family residences. Chelmsford has four primary residential zones – Residential A (RA), Residential B (RB), Residential C (RC) and Residential Multi-Family (RM)- which all allow single-family dwellings. Two-family dwellings are allowed only in the RC and RM districts, while multifamily dwellings are allowed in the RM district and the Center Village (CV) only by Planning Board special permit. Additional information is included in the Land Use and Zoning section.

Comprehensive Permits

The Massachusetts Comprehensive Permit Law (Chapter 40B of the Massachusetts General Laws), enacted in 1969, was designed to “increase the supply and improve the regional distribution of low- or moderate-income housing by allowing a limited override of local requirements and regulations which are inconsistent with local and regional affordable housing needs”. The Commonwealth has established a 10% affordable housing goal (10% of total year round housing units) for every community. These housing units must have public subsidies and

have at least a fifteen-year affordability restriction for rental units and thirty-year affordability restriction for ownership units. Currently, the Massachusetts Department of Housing and Community Development (DHCD), which oversees this program, utilizes the year-round housing unit data from the 2010 U.S. Census to determine the 10% affordability goals for each community.. DHCD will be updating the affordable housing goals for each community once the new year-round housing unit figures are released with the 2020 U.S. Census.

Affordable housing units have been developed to serve low- and moderate-income individuals and families that meet affordability thresholds calculated annually by the U.S. Department of Housing and Urban Development (HUD). These thresholds, which are based on a combination of household income and the total number of individuals living in a given household, are calculated primarily on a regional basis. In the case of Chelmsford, affordability thresholds are based on household incomes in the Lowell Metropolitan Fair Market Rent (FMR) Area. Table 5.15 summarizes the FY 2020 adjusted household income limits used to determine eligibility for affordable housing in the Greater Lowell region.

Table 5.15: Adjusted Income Limits by Household Size, Lowell Metro FMR Area, FY 2020

Income Limit Area	Area Median Income	FY 2020 Income Limit Category	Household Size							
			1-Person	2-Person	3-Person	4-Person	5-Person	6-Person	7-Person	8-Person
Lowell, MA HUD Metro FMR Area	\$108,000	30% - Extremely Low	\$22,700	\$25,950	\$29,200	\$32,400	\$35,000	\$37,600	\$40,200	\$44,120
		50% - Very Low	\$37,800	\$43,200	\$48,600	\$54,000	\$58,350	\$62,650	\$67,000	\$71,300
		80% - Low	\$55,950	\$62,800	\$70,650	\$78,500	\$84,800	\$91,100	\$97,350	\$103,650

Source: U.S. Department of Housing and Urban Development

In terms of the actual number of subsidized housing units in the Town of Chelmsford and the Greater Lowell region, Table 5.16 below shows the changes in the total number of affordable housing units for Chelmsford and the region from January 2014 to July 2020. These figures are part of the Subsidized Housing Inventory (SHI) that DHCD maintains in order to determine how well each community has done in meeting its 10% affordable housing goal.

Table 5.16: Subsidized Housing Units (SHI) in the Greater Lowell Region

Community	2010 Year Round Housing Units	Total Subsidized Housing Inventory (SHI) Units			Percent SHI Units	
		January 2014	February 2021	Percent Change	January 2014	February 2021
Billerica	14,442	857	1,664	94.2	5.9	11.5
Chelmsford	13,741	1,064	1,433	34.7	7.7	10.4
Dracut	11,318	719	590	-17.9	6.4	5.2
Dunstable	1,085	0	0	NA	0	0
Lowell	41,308	5,215	5,119	-1.8	12.6	12.4
Pepperell	4,335	129	130	0.8	3.0	3.0
Tewksbury	10,803	1,030	1,062	3.1	9.5	9.8
Tyngsborough	4,166	340	469	37.9	8.2	11.3
Westford	7,671	351	1,057	201.1	4.6	13.8
Greater Lowell	108,869	9,705	11,524	18.7	8.9	10.6

Source: Massachusetts DHCD, Chapter 40B SHI, January 2014 and February 2021

Between January 2014 and February 2021, the number of subsidized housing units in Chelmsford increased by 34.7%, from 1,064 units to 1,433 units. Based upon the increase in the number of subsidized units, Chelmsford attained an affordable housing level of 10.4% in February 2021. Subsidized housing units across the region grew by 18.7% between January 2014 and February 2021, with increases in every community except for Dracut, Dunstable, and Lowell. With these changes in the subsidized housing inventory, the region increased its affordable housing level from 8.9% in January 2014 to 10.5% in February 2021. While Chelmsford has exceeded 10%, the number of affordable housing units will need to increase to keep pace with the change in the revised year-round housing unit number in the 2020 U.S. Census.

Table 5.17 provides a summary of the Chapter 40B development projects in Chelmsford as of February 12, 2021.

Table 5.17: Chapter 40B Development Projects in Chelmsford, February 2021

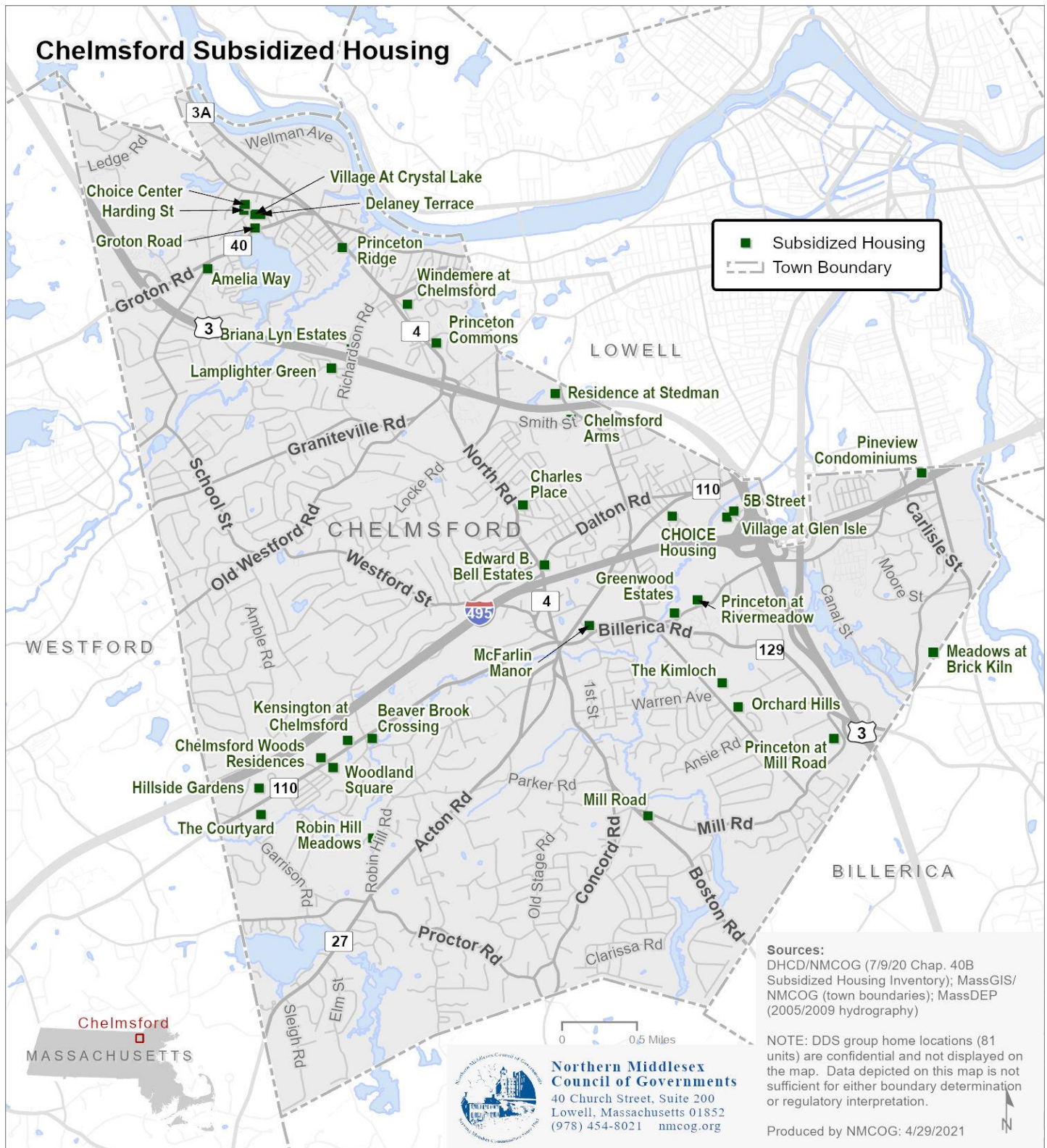
Project Name	Address	Type	Total SHI Units	Affordability Expires	Built with Comp Permit?	Subsidizing Agency
Chelmsford Arms	1 Smith St.	Rental	64	Perpetuity	No	DHCD
Delaney Terrace	8 Sheila Ave.	Rental	51	Perpetuity	Yes	DHCD
McFarlin Manor	10 Wilson St.	Rental	50	Perpetuity	Yes	DHCD
Groton Road	79A Groton Rd.	Rental	8	Perpetuity	Yes	DHCD
NA	Mill Rd./ Sheila Ave.	Rental	11	Perpetuity	Yes	DHCD
Lamplighter Green	Richardson Rd.	Ownership	24	Perpetuity	Yes	DHCD
Meadows at Brick Kiln	82 Brick Kiln Rd.	Rental	180	2029	Yes	Mass Housing
The Courtyard	360 Littleton Rd.	Ownership	42	Perpetuity	Yes	DHCD
Briana Lyn Estates	86 Richardson Rd.	Rental	16	Perpetuity	No	DHCD
Charles Place	Deca Drive	Ownership	2	Perpetuity	No	DHCD
Kensington at Chelmsford	223-229 Littleton Rd.	Rental	144	2111	Yes	Mass Housing-
Windemere at Chelmsford	Princeton/ Fairview St.	Ownership	14	Perpetuity	Yes	FHLBB
Village at Crystal Lake	Sheila Ave.	Rental	51	Perpetuity	Yes	DHCD HUD
Orchard Hills	130 Turnpike Rd.	Ownership	6	Perpetuity	Yes	Mass Housing
DDS Group Homes	Confidential	Rental	81	N/A	No-	DDS
Residence at Stedman	140 Stedman	Ownership	2	Perpetuity	Yes	DHCD
Village at Glen Isle	37 Glen Ave.	Ownership	8	Perpetuity	Yes	DHCD

Table 5.17 (cont'd): Chapter 40B Development Projects in Chelmsford, February 2021

Project Name	Address	Type	Total SHI Units	Affordability Expires	Built with Comp Permit?	Subsidizing Agency
Princeton Commons	One Technology Drive	Rental	108	Perpetuity	Yes	Mass Housing
Robin Hill Meadows	147 Robin Hill Rd.	Ownership	4	Perpetuity	Yes	DHCD
Woodland Square	262-264 Woodland Square	Ownership	8	Perpetuity	Yes	DHCD
Princeton Ridge	67 Princeton St.	Ownership	3	Perpetuity	Yes	DHCD
Choice Center	19 Sheila Ave.	Rental	37	Perpetuity	Yes	DHCD
Princeton at Rivermeadow	Off Riverneck Rd.	Rental	0	Perpetuity	Yes	Mass Housing
Harding Street	Harding St.	Rental	8	Perpetuity	No	DHCD
Amelia Way	8 Main St.	Ownership	2	Perpetuity	Yes	DHCD
Chelmsford Woods Residences	261-267 Littleton Rd.	Rental	116	Perpetuity	Yes	DHCD
5B Street	5B Street	Ownership	1	Perpetuity	Yes	DHCD
CHOICE Housing	9 Manahan St.	Rental	8	2042	No	DHCD Mass Housing
Princeton at Mill Road	276 Mill Rd.	Rental	108	Perpetuity	Yes	Mass Housing
Hillside Gardens	311 Littleton Rd.	Ownership	11	Perpetuity	Yes	DHCD
Beaver Brook Crossing	50 Hunt Rd.	Rental	84	Perpetuity	Yes	Mass Housing
Greenwood Estates	271 Riverneck Rd.	Ownership	4	Perpetuity	Yes	Mass Housing
Pineview Condominiums	7 Gorham/ 1 Pineview	Rental	9	Perpetuity	Yes	Mass Housing
Edward B. Bell Estates	73 Dalton Rd.	Rental	0	Perpetuity	Yes	DHCD
The Kimloch	104 Turnpike Rd.	Rental	168	Perpetuity	Yes	DHCD
Total			1,433			

Source: Massachusetts DHCD, Chapter 40B SHI, February 12, 2021

Map 5.2: Chelmsford Subsidized Housing



Infrastructure Limitations Impacting Housing

Although the Town has well developed sewer, water, and road networks, there are some infrastructure barriers to the development of additional housing. Based on a report from Weston & Sampson in August 2020, it was estimated that Chelmsford would need an additional 150,000 to 200,000 gpd of average daily flow (ADF). On September 15, 2020 the Sewer Division enacted a one-year moratorium on new sewer connections and increases to flows for existing connections. At the Fall 2020 Town Meeting several articles were approved in order to address this issue. Without increased sewer capacity, the Town will not be able to meet its 10% affordability goal. According to the North Chelmsford Water District, there are no current constraints related to water capacity in their service area.

HOUSING NEEDS

This section outlines the affordable housing needs in Chelmsford by summarizing the changes in the socioeconomic characteristics of Chelmsford households between 2006-2008 and 2014-2018, while also examining changes in per capita income, median household income, median family income, and poverty levels from 2000 to 2014-2018. Additional information related to the 2021 Federal Poverty Guidelines and the characteristics of the disabled population living in Chelmsford as of 2014-2018 are also provided.

Within this section there is a discussion of housing affordability and the housing cost burden for homeowners and renters in Chelmsford. The future of the private housing market, as well as the subsidized housing market, will depend upon the strategies adopted through this Master Plan.

Demographic Profile

This section presents the socioeconomic characteristics of Chelmsford's residents. It includes a discussion of changes in the number of households and families, household types, age, income, and disability status. Table 5.18 on the following page examines changes in the total number of households, families, and different household types between 2006-2008 and 2014-2018.

Table 5.18: Household Types in Chelmsford, 2006-2008 and 2014-2018

Household Type	2006-2008		2014-2018		Percent Change 2006/2008 to 2014/2018
	Number	Percent	Number	Percent	
Family Households	8,891	67.5	9,594	70.4	7.9
Married-couple	7,393	83.2	8,053	83.9	8.9
⊕ With related children under 18 years	3,527	47.7	3,400	42.2	-3.6
⊕ With no related children under 18 years	3,866	52.3	4,653	57.8	20.4
Female householder, no spouse	1,090	12.3	1,203	12.5	10.4
Male householder, no spouse	408	4.6	338	3.5	-17.2
Nonfamily households	4,275	32.5	4,032	29.6	-5.7
Householder living alone	3,891	91.0	3,544	87.9	-8.9
⊕ Householder 65 years and over	1,469	37.8	1,667	47.0	13.5
Total households	13,166	100.0	13,626	100.0	3.5
Average household size	2.45	NA	2.56	NA	4.5
Average family size	3.07	NA	3.11	NA	1.3

Source: American Community Survey for 2006-2008 and 2014-2018

According to the American Community Survey, the number of households in Chelmsford increased by 460 households or 3.5% between 2006-2008 and 2014-2018. However, the composition of these households changed considerably during this period. Family households increased from 67.5% of total households in 2006-2008 to 70.4% of total households in 2014-2018, while nonfamily households decreased from 32.5% of total households in 2006-2008 to 29.6% of total households in 2014-2018. Single-person households decreased from 3,891 households in 2006-2008 to 3,544 households in 2014-2018. The average household size increased from 2.45 persons in 2006-2008 to 2.56 persons in 2014-2018, while the average family size increased from 3.07 persons in 2006-2008 to 3.11 persons in 2014-2018.

Table 5.19 illustrates the changes in per capita, median household income, and median family income from 2000 to 2014-2018. The per capita income increased by 66.4% between 2000 and 2014-2018. Median household income increased by 56.7% during the same time period. Median family income increased by 109.6% from \$82,676 in 2000 to \$173,304 in 2014-2018.

Table 5.19: Income Indicators: 2000 and 2014-2018

	2000	2014-2018	Percent Change 2000-2014/2018
Per Capita Income	\$30,465	\$50,685	66.4
Median Household Income	\$70,207	\$109,955	56.7
Median Family Income	\$82,676	\$173,304	109.6

Source: 2000 U.S. Census and American Community Survey for 2014-2018

As shown in Table 5.20, the percentage of families living in poverty increased slightly from 2% in 2000 to 2.4% in 2014-2018. However, there was a greater impact upon female-headed households with children showing an increase in the poverty rate from 10.4% in 2000 to 16.3% in 2014-2018. In terms of those individuals living in poverty, there was an increase in the poverty rate from 2.8% in 2000 to 3.8% in 2014-2018. The poverty rate for those individuals 65 years and older actually decreased from 5.3% in 2000 to 4.1% in 2014-2018.

Table 5.20: Percentage of Families and Individuals in Poverty: 2000 and 2014-2018

	2000	2014-2018
Percent of Families in Poverty	2.0	2.4
With Children under 18 years	2.7	3.4
With Children under 5 years	1.8	4.2
In female-headed households with children	10.4	16.3
Percent of Individuals in Poverty	2.8	3.8
65 Years or Older	5.3	4.1

Source: 2000 U.S. Census and 2014-2018 American Community Survey

The Federal Poverty Level Guidelines for 2021 are outlined in Table 5.21. These poverty guidelines are updated annually by the U.S. Department of Health and Human Services and are based upon the number of persons within a family.

Table 5.21: Federal Poverty Level Guidelines for 2021

Persons in Family	Poverty Guideline
1	\$12,880
2	\$17,420
3	\$21,960
4	\$26,500
5	\$31,040
6	\$35,580
7	\$40,120
8	\$44,660

Source: U.S. Department of Health and Human Services as of January 15, 2021

Table 5.22 on the following page summarizes the characteristics of the disabled community living in Chelmsford. In 2014-2018, there were 3,540 residents with at least one physical, mental, or sensory disability, which represents a 22.5% increase since 2007. Youth (under the age of 17) comprised 8.7% of the disabled community, while adults and seniors comprised 35.8% and 55.5% respectively. Nearly 41% of disabled residents are living with two or more disabilities. Physical disabilities are most common (51%), followed by mental disabilities (29.9%), one go outside home disabilities (26.6%), employment disabilities (23.8%) and sensory disabilities (23.5%).

Table 5.22: Characteristics of the Disabled Population Living in Chelmsford

Disability Status	Number	Percent of Total Disabled Population
Ages 5-17	309	8.7
Ages 18-34	270	7.6
Ages 35-64	998	28.2
Ages 65-74	632	17.9
75 years +	1,331	37.6
Total	3,540	100.0
One Physical Disability	1,806	51.0
One Mental Disability	1,059	29.9
One Sensory Disability	831	23.5
One Employment Disability	841	23.8
One Go Outside Home Disability	940	26.6
Two or more disabilities	1,448	40.9

Source: American Community Survey for 2014-2018

Housing Affordability

As previously discussed, the sales prices for homes has increased substantially since 1996. As of 2020, the median sales price for a market rate single-family home was \$487,500 and the median selling price for a condo was \$305,200. At these prices, a buyer looking to purchase a single-family home in Chelmsford would have a monthly mortgage payment of \$1,696.50, while a condo purchaser would have a monthly payment of \$1,062.02.

Even though personal and family incomes in Town have substantially increased since 2000, many residents still find the cost of market-rate housing in Chelmsford prohibitive. Based on the 2014-2018 median household income in Chelmsford (\$109,955), the average household in Chelmsford could afford to purchase a single-family home valued at \$536,875, assuming that their housing costs are at 33%. In the past, the Chelmsford Housing Authority estimated that as many as one in four households qualified for affordable housing based on HUD's 50% AMI standard. Clearly, market-rate housing for these households—with the exception of some condominiums-- remains out of reach.

Figure 5.8 and Figure 5.9 on the following pages show Chelmsford owner and renter households by income based upon data provided by the Massachusetts Housing Partnership:

Figure 5.8: Chelmsford Owner Households by Income

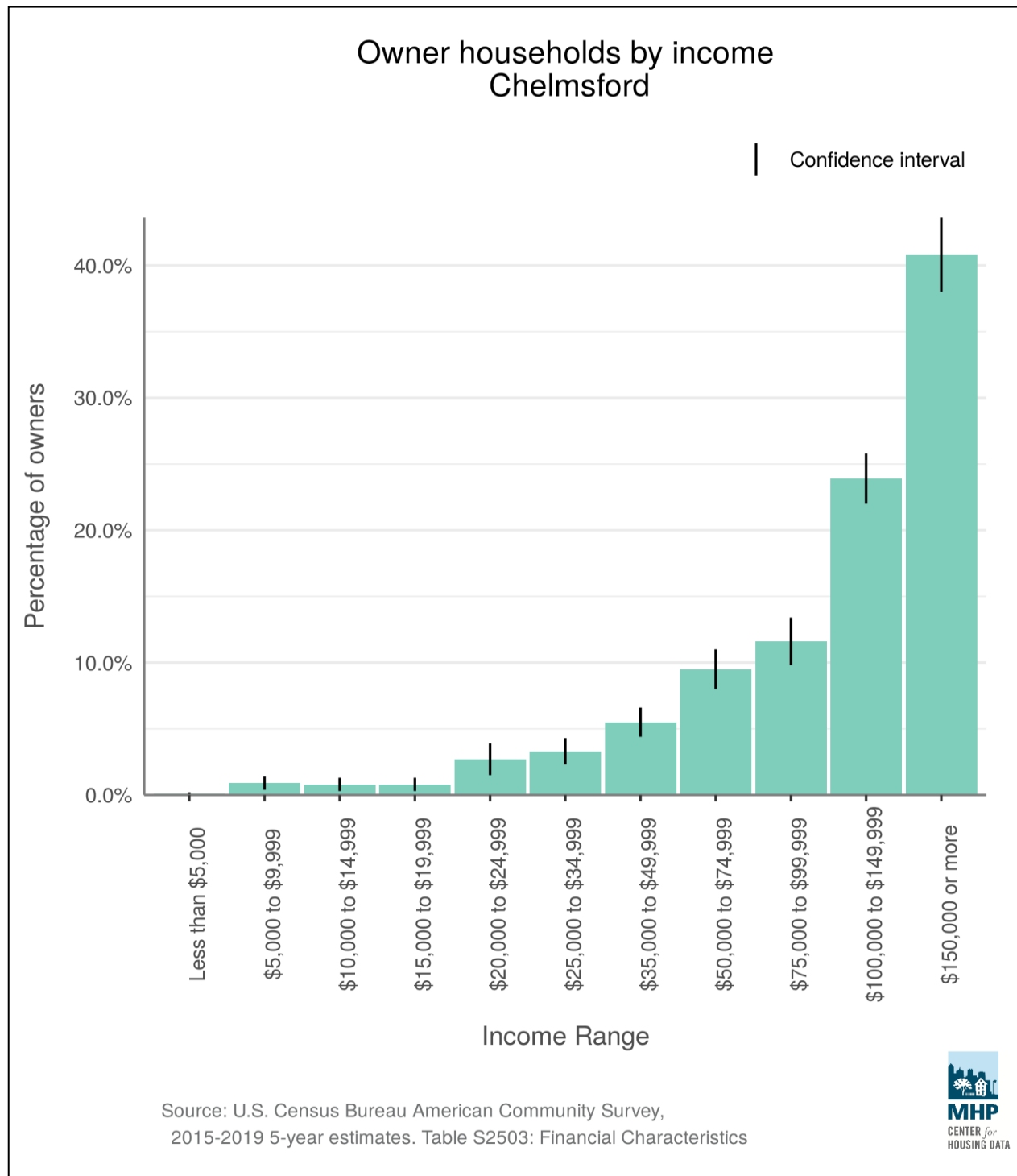
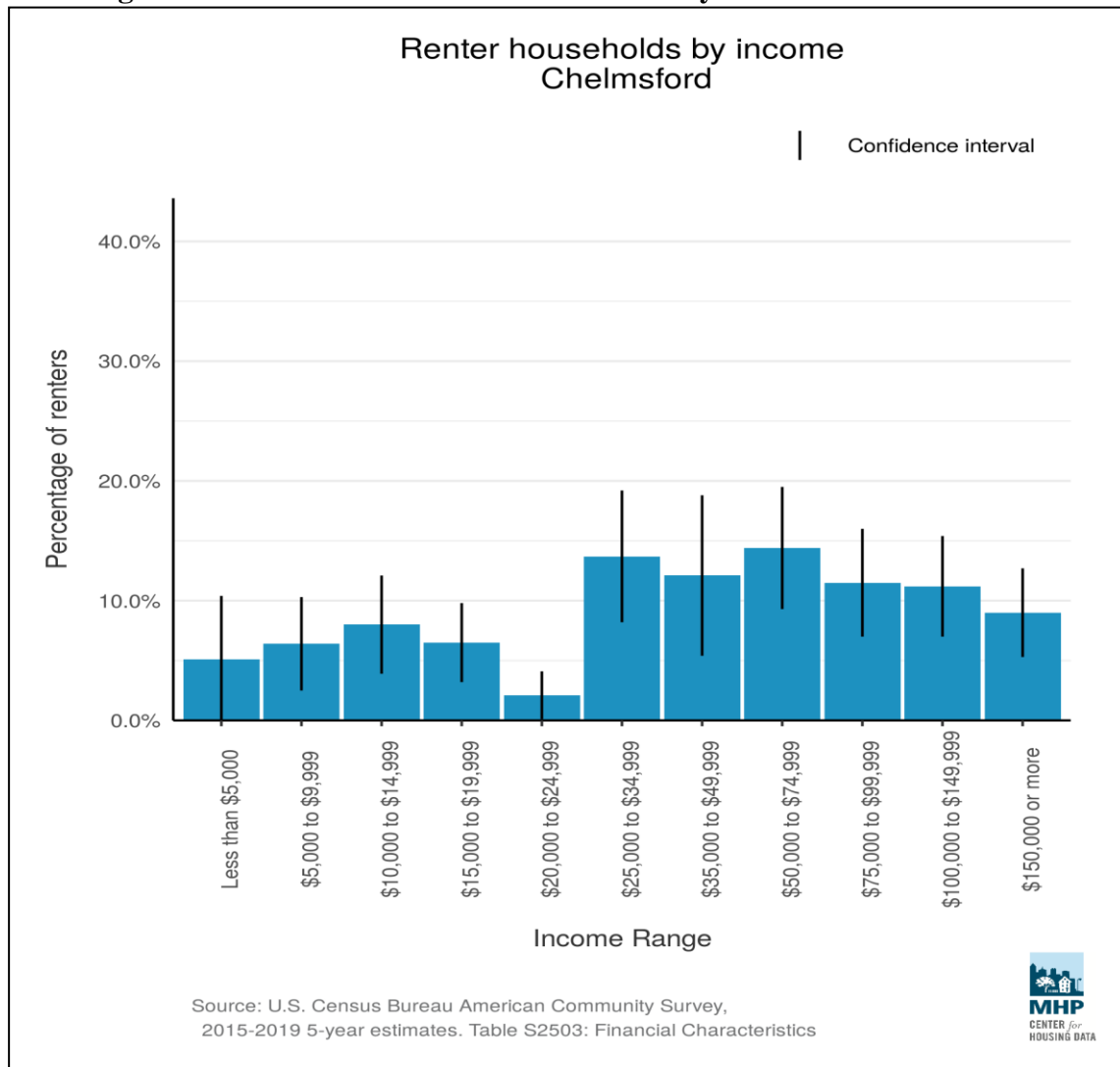


Figure 5.9: Chelmsford Renter Households by Income



Housing Burden

Table 5.23 examines selected monthly owner costs, by mortgage status, for homeowners in Chelmsford as of 2014-2018. According to this data, 7,709 homeowners (71.6%) have an existing mortgage. Approximately 1.6% of households with a mortgage pay less than \$ 1,000 per month on housing-related expenses, while 84.6% percent of households without a mortgage pay less than \$1,000 per month. An additional 879 homeowners with a mortgage pay between \$ 1,000 and \$ 1,499 per month in housing related expenses, while 18.6% of all homeowners with a mortgage pay between \$ 1,500 and \$ 1,999 on housing-related expenses. Nearly 68.5% of all households with a mortgage paid more than \$ 2,000 per month in housing costs in 2014-2018.

Table 5.23: Selected Monthly Owners Costs by Mortgage Status

Housing Units with a Mortgage		Housing Units without a Mortgage	
Total Number of Households	7,709	Total Number of Households	3,064
Less than \$200	0	Less than \$200	20
\$200 to \$399	7	\$200 to \$399	80
\$400 to \$599	18	\$400 to \$599	233
\$600 to \$799	24	\$600 to \$999	2,261
\$800 to \$999	71	\$1,000 to \$1,299	825
\$1,000 to \$1,499	879	\$1,300 to \$1,499	132
\$1,500 to \$1,999	1,432	\$1,500 or more	171
\$2,000 to \$2,499	2,053		
\$2,500 to \$2,999	1,707		
\$3,000 or more	1,518		

Source: 2014-2018 American Community Survey for

Table 5.24 shows total monthly costs, by mortgage status, as a percent of total household income for 2014-2018. In general, housing is considered ‘affordable’ if its associated costs do not exceed 30% of the household income. According to the data, 45% of households with a mortgage and 67.6% of households without a mortgage pay less than 20% of their income on housing-related costs. Homeowners paying between 20% and 29.9% of their household income on housing-related expenses were represented by 2,347 housing units with a mortgage and 415 housing units without a mortgage. Therefore, 75.4% of homeowners with a mortgage and 78.7% of homeowners without a mortgage live in housing that is considered affordable, relative to their annual household income. Although housing costs are affordable for a majority of homeowners in Chelmsford, 24.4% of owners with a mortgage are paying more than 30% of their income on housing costs, and 21.2% of owners without a mortgage are paying more than 30%.

Table 5.24: Selected Monthly Owner Costs as a Percentage of Household Income

	Housing Units with a Mortgage		Housing Units without a Mortgage	
	Number	Percent	Number	Percent
Total Number of Households	7,709	99.9	3,722	99.9
Less than 10%	439	5.7	1,478	39.7
10% to 14.9%	1,275	16.5	693	18.6
15% to 19.9 %	1,758	22.8	345	9.3
20% to 24.9%	1,504	19.5	273	7.3
25% to 29.9%	843	10.9	142	3.8
30% to 34.9%	540	7.0	167	4.5
35% to 39.9%	354	4.6	138	3.7
40% to 49.9%	312	4.0	209	5.6
50% or more	677	8.8	277	7.4
Not computed	7	0.1	0	0.0

Source: American Community Survey for 2014-2018

Households paying between 30% and 49.9% of their incomes account for 4% of households with a mortgage, and 5.6% of households without one. Additionally, 8.8% of households with a mortgage and 7.4% without a mortgage are considered “severely burdened” by housing, paying more than 50% of their income on housing-related costs.

Housing burdens within the rental community in Chelmsford are also important to highlight. Table 25 on the next page shows the monthly housing costs for renters in Chelmsford in 2014-2018. Approximately 6% of renters paid less than \$500 per month on rent, while 7% paid between \$500 and \$999, and 68.7% paid between \$1,000 and \$1,999. Renters who paid more than \$2,000 per month represented 18.2% of all rental households, as compared to 4% in 2007. Renters often pay additional money for utilities, such as heat and electricity in 2008. These expenses, which have been increasing annually over the past several years, increase the housing-related costs for renters.

Table 5.25: Median Gross Rent in 2014-2018

Cost Bracket	Number of Households	Percentage
Less than \$250	11	0.4
\$250 to \$499	160	5.6
\$500 to \$749	12	0.4
\$750 to \$999	188	6.6
\$1,000 to \$1,249	624	22.0
\$1,250 to \$1,499	598	21.1
\$1,500 to \$1,999	726	25.6
\$2,000 to \$2,499	257	9.1
\$2,500 to \$2,999	229	8.1
\$3,000 to \$3,499	29	1.0
With cash rent:	2,834	99.9
No cash rent	130	100.0

Source: 2014-2018 American Community Survey

Table 5.26 breaks down the cost of rent as a percentage of household income in 2014-2018. According to this data, 482 rental households (23.6%) spent less than 20% of their income on rent. Another 631 households, or 30.9% of renters, spent between 20% and 29.9% of their income on rent. In other words, 1,113 rental households (54.5%) in 2014-2018 lived in rental housing that was considered affordable relative to their household income.

However, 927 rental households (45.4%) in Chelmsford spent more than 30% of their income on rent. Of these rental households, 751 households paid more than 35% of their income on rent. When compared to monthly housing costs as a percentage of income for homeowners, it becomes clear that the housing burden for renters is more onerous than for homeowners.

Table 5.26: Rent as a Percentage of Household Income in 2014-2018

Percentage of Household Income Going to Rent	Number	Percent
Total Renting Households	2,040	100.0
Less than 15 percent	272	13.3
15% to 19.9%	210	10.3
20% to 24.9%	274	13.4
25% to 29.9%	357	17.5
30% to 34.9%	176	8.6
35% or more	751	36.8
Not computed	155	NA

Source: 2014-2018 American Community Survey

Affordable Housing Efforts in Chelmsford

The Town of Chelmsford has addressed its affordable housing initiatives principally through the development of the 2017 Chelmsford Affordable Housing Plan and the 2021 Age-Friendly Chelmsford Action Plan. The principal entities responsible for implementing these affordable housing initiatives are the Chelmsford Housing Authority, the Chelmsford Housing Advisory Board and the Community Preservation Committee. This section summarizes what's in the Chelmsford Affordable Housing Plan and the Age-Friendly Chelmsford Action Plan and describes the principal activities of the Housing Authority, the Housing Advisory Board and the Community Preservation Committee. These entities work closely with the Community Development Department in implementing the affordable housing initiatives for the community.

Chelmsford Affordable Housing Plan January 2017

In January 2017 the Town published its *Chelmsford Affordable Housing Plan* after receiving approvals from the Planning Board and the Board of Selectmen. The *Affordable Housing Plan* was developed to update the 2011 Housing Production Plan (HPP) that was expected to expire on January 8, 2017. The 2017 Chelmsford Affordable Housing Plan summarized the activities that had taken place since the HPP was submitted for approval by the Department of Housing and Community Development (DHCD).

The Chelmsford Housing Advisory Board (HAB) was established in 2012 and heard eight comprehensive permit applications as follows:

- A 115-unit rental project on Littleton Road, which was approved and partially constructed;
- A project on Riverneck Road that was to include a group home, which was approved but dropped by the applicant;
- An ownership project that was changed to an Open Space Permit project that resulted in a payment-in-lieu to the Chelmsford Housing Authority for two affordable units;

- A 120-unit rental project on Mill Road (reduced to 112 units) that was approved and was still pending;
- A small rental project submitted as a Local Initiative Project to the Board of Selectmen;
- A 150-unit rental project on Brick Kiln Road;
- A 28-units rental project on Gorham Street; and
- A 84-unit rental project on Hunt Road.

According to the Plan, Chelmsford had met its planned production goals under the HPP as follows:

- Chelmsford Woods Residences located at 261-267 Littleton Road was completed through a partnership between the Chelmsford Housing Authority and the Stratford Capitol Group for 115 rental units. This resulted in a “safe harbor” status for the Town from June 2013 to June 2014.
- Princeton at Mill Road located at 276 Mill Road was approved for 108 rental units. “Safe Harbor” status was extended to June 2015.
- A group home project located at 271-273 Riverneck Road for 5 affordable units was approved, but dropped by the applicant.
- A Local Initiative Project (LIP) located at 73 Dalton Road was approved by the Board of Selectmen and, subsequently, the Zoning Board of Appeals, and resulted in 5 rental units, two of which were affordable.

The HAB updated the HPP priority sites to include the following sites:

- 93 Brick Kiln Road;
- 111 Chelmsford Street;
- 271-279 Chelmsford Street;
- 280-284 Chelmsford Street;
- 7 Gorham Street/1 Pinehill;
- 236 Groton Road;
- 276-282 Mill Road;
- 59-65 Princeton Street;
- 133 Princeton Street;
- 255 Princeton Street;
- 128 Riverneck Road;
- 191 Riverneck Road;
- 243 Riverneck Road;
- 271 Riverneck Road;
- 136 Steadman Street;
- 10 Technology Drive;

- 80-104 Turnpike Road;
- 33 Vinal Square/9 Princeton Street; and
- Woodland Park (Dunstan Road-Off)

Age-Friendly Chelmsford Action Plan

The Age-Friendly Chelmsford Action Plan was completed in January 2021. The Plan focuses on six different domains of livability: Housing, Transportation, Community Supports & Health Services, Outdoor Spaces and Building, Social Participation, Respect and Inclusion, Civic Engagement and Employment and Communications & Information. The Housing domain of livability focuses on “promoting the availability of a range of affordable, age-friendly housing options, as well as housing modification programs for aging in place”. According to the Plan, “We envision Chelmsford as a Town that meets the housing needs of older residents, those with disabilities, and families in need of affordable housing”.

The Plan outlines the following Housing Goals and Action Items:

Goal #1: Continue to streamline, expand, and promote programs that support affordable housing and the ability for residents to age-in-place.

- **Action Item A:** Increase availability of affordable housing through funding opportunities, such as MA DHCD funding and matching funds from community preservation (CPC) and linkage funds.
- **Action Item B:** Preserve and improve existing affordable housing stock through the recent award from the State of Massachusetts to modernize 47 existing units of State Public Housing for seniors.
- **Action Item C:** increase the number of rental vouchers; continue to pursue more awards; and explore additional rental units in private market.
- **Action Item D:** Develop a comprehensive plan to address the shortage of senior housing options in the Town of Chelmsford. Execute a land inventory to identify parcels that are appropriate for new development of senior housing. Include information about ownership, size, zoning, and other parameters relevant to property development.
- **Action Item E:** Encourage developers to create housing options for downsizing. Explore options for new development, including 37-50 new senior housing units directly adjacent to the Chelmsford Senior Center.
- **Action Item F:** Advocate for zoning by-laws that support the development of additional housing options.

Goal #2: Increase awareness of current housing options and support the development of new options for Chelmsford residents wishing to age in place through public forums, new by-laws, and outreach by stakeholders.

- **Action Item A:** Host public forums with housing experts to share information and build awareness around existing and planned housing options for seniors in Chelmsford. Include information regarding independent and supportive housing options; waiting lists; costs; and supportive services.
- **Action Item B:** Host a roundtable discussion to discuss the challenges and goals in addressing the shortage of housing options. Encourage stakeholder input to evaluate local funding opportunities; support development/redevelopment; explore use of public land; and review current zoning options.
- **Action Item C:** Develop a draft request for a housing options housing study in Chelmsford. Examine the cost-effectiveness of developing smaller, age-friendly housing options. Include evaluation of additional locations for mixed-use development.

Goal #3: Educate Chelmsford residents about local options that help seniors remain in their homes, including tax deferrals for the existing homes, home modification programs to make their home more accessible, and other.

- **Action Item A:** Provide annual announcements at public meetings about tax deferral options. Hold information sessions at the Senior Center to educate the community about these options and provide flyers to the local library, Senior Center, and Chelmsford Housing Authority. Topics will include home modification programs, Senior Circuit Breaker Tax Credit and Tax Deferral Program.
- **Action Item B:** Explore shared housing arrangements for older adults. Enlist the Senior Center and real estate agents to connect homeowners with residents seeking rental units. For a model in place in other communities, see Nesterly.
- **Action Item C:** Consider developing a tax relief incentive for residents completing age-friendly home modifications or the creation of an ADU.

Goal #4: Create a program for affordable services (i.e., a clearinghouse of handyman services) to help those in need with home chores, maintenance, contractor referral and/or help with project management.

- **Action Item A:** Collaborate with partners to investigate the feasibility of creating the program. Determine program policies/procedures to include eligibility criteria, menu of repair person services, vetting process, scheduling process, customer survey, payment options, etc.
- **Action Item B:** Implement a trusted and successful pilot repair person service through collaboration with partners, including reliable, certified and affordable contractors.

Chelmsford Housing Authority

The Chelmsford Housing Authority (CHA) has served the Town of Chelmsford for more than 50 years. The CHA is committed to serving low- and moderate-income seniors, families, veterans,

and disabled individuals in need of affordable housing. With the decline in federal and state affordable housing resources, the CHA founded the non-profit CHOICE Housing Opportunities for Intergenerational and Community Endeavors, Inc. (CHOICE, Inc.) in 2001. In 2017, CHOICE, Inc. acquired the assets of the Chelmsford Housing Elder Partnership, Inc. (CHEP) and the Westford Initiative for Senior Housing, Inc. (WISH).

The CHA primarily serves the Town of Chelmsford, but has also provided support in other communities. According to the 2020 Chelmsford Annual Report, the CHA received 58 new Section 8 vouchers for non-elderly disabled applicants at risk of homelessness or experiencing homelessness. The senior housing project in Shirley for 58 seniors was recently completed. Permitting was nearing completion for a new project in Westford that will house 18 seniors in need of supportive services, while the CHA/CHOICE acquired Brianna Lyn at 86 Richardson Road and secured \$2.8 million in rehabilitation funds. CHOICE has expanded its private management contracts to include the Kinloch, Mill and 3 and Beaver Brook developments. A new 7-unit supportive senior development in Westford was planned to be opened. The CHA was able to secure more than \$4 million to rehab McFarlin Manor and \$700,000 for Chelmsford Arms to be started in 2021.

Under the State Aided Senior Housing, those on the waiting list have been transitioned over to a Statewide waiting list that consists of 160,000 applicants. The average wait is still over 5-7 years for State Public Housing, while all the other developments are in the 3-5 year waiting period. The CHA manages more than 800 Section 8 Rental Vouchers. As of 2020, there were more than 3,000 applicants on the waiting list, of which 1/3 had a local preference based upon where they lived or worked. The average wait time for rental vouchers is approximately nine years. The CHA had more than 1,100 applicants on their waiting lists that either work or live in Chelmsford.

According to the CHA Executive Director, as of March 2021 there were 129 local seniors, 47 disabled residents, and 471 families who live or work in Chelmsford on the waiting list. The average wait time for these individuals and families is 7-10 years. There were also 28 local veterans with a wait time of 3-5 years.

The CHA also manages the Northeast Regional Capital Asset Team for the Massachusetts Department of Housing and Community Development and is responsible for overseeing and providing technical assistance to 68 housing authorities (9,000 units) related to their State Housing Capital Program. This program was instrumental in the distribution of PPE to these agencies during the COVID-19 Pandemic.

In addition to bricks and mortar projects, the CHA runs a number of education and training programs for residents in need of support services. These services include employment training

opportunities, support programs for the elderly, and the Family Self-Sufficiency Program, which includes childcare, credit counseling, stress management, and homeownership counseling.

Chelmsford Housing Advisory Board (HAB)

The Chelmsford Housing Advisory Board (HAB) is a permanent standing committee, whose mission is:

- To conduct pre-application meetings, as requested by potential applicants, to ensure housing proposals are consistent with the housing goals stated in the adopted master plan and affordable housing master plan documents;
- To provide advisory opinions, as requested by Town Boards during the permitting process, to ensure the proposals are consistent with the housing goals stated in the adopted master plan and affordable housing master plan documents;
- To work with the Community Development Department, Housing Authority, and applicants, to implement the actionable components of the Affordable Housing Plan in order to meet the desired levels of affordable housing units established in Chelmsford; and
- Perform research as requested on new initiatives pertaining to housing.

In essence, the HAB identifies programs and resources that may help owning or renting in Chelmsford more affordable. The HAB provides affordability assistance information for property tax reductions, income tax reductions, rental assistance, mortgage and foreclosure assistance, and general housing affordability information.

Community Preservation Committee

The Community Preservation Committee (CPC) consists of nine members and implements the Community Preservation Act (CPA) for the Town of Chelmsford. Funding for the CPA is created through a surcharge on the local property tax, which is also matched by state funds, and these funds provide assistance for Open Space Preservation, Historic Preservation and Affordable Housing projects. A minimum of 10% of the funds must be allocated to each area, while the remaining funds may be allocated based upon the recommendations made by the CPC. Approximately \$ 1,491,186 was available in CPA funds in FY 2020 and the CPC recommends projects to be funded to Town Meeting, which appropriates the CPA funds. Since the approval of the CPA in April 2001, the total CPA funds available to the community has been \$17,886,457.

As outlined in the Community Preservation Fiscal Year 2012 Plan, the CPC has established the following goals for the allocation of CPA funds for Affordable Housing:

- *Meet local housing needs along the full range of low and moderate incomes, while promoting diversity and the stability of individuals and families living in Chelmsford.*
- *Ensure that new affordable housing is harmonious with the existing community.*
- *Meet the 10% State standard for affordable housing.*
- *Leverage other public and private resources to the greatest extent possible.*

In essence, affordable housing funds are used to create additional units of affordable housing across the whole range of affordability through different means, from new construction to buying down existing housing units to make them affordable.

Since the completion of the *2010 Chelmsford Master Plan*, the CPC Committee has funded three major affordable housing developments: Chelmsford Woods Affordable Housing, Highland Avenue Affordable Housing and Manahan Street Veterans Housing. Outlined below are summaries of each project:

- The Chelmsford Woods Affordable Housing project created 115 units of affordable housing on an underdeveloped site on Littleton Road and was approved on April 30, 2013. The CPC invested \$695,047 in CPA funds and \$1,486,000 in CPA bonds for a total investment of \$2,181,047. This investment leveraged \$29,707,177 in other state and federal funds for a total project cost of \$31,888,224.
- The Highland Avenue Affordable Housing project created 5 units of affordable housing through the Chelmsford Housing Authority and was approved on April 22, 2010. The CPC invested \$75,000 in CPA funds, which was matched by \$1,425,000 in state funds for a total project cost of \$1,500,000.
- The Manahan Street Veterans Housing project created 8 bedrooms of Veterans Housing in a two-story residential building through the Chelmsford Housing Authority and was approved on April 22, 2010. The CPC invested \$400,000 in CPA funds, which was matched by \$1,050,000 in state, private and miscellaneous funds for a total project cost of \$1,450,000.

In addition to the CPA funds, there is currently \$860,000 in the Housing Stabilization Fund, which was derived through the Inclusionary Housing bylaw and contributions by private developers in lieu of producing affordable housing units.

Public Input

The Chelmsford Master Plan Committee held a SWOT Visioning session on May 30, 2019 to receive public input on the Strengths, Weaknesses, Opportunities and Threats related to the Town of Chelmsford. Those items raised related to Housing were as follows:

Strengths

- Diverse housing stock.

Weaknesses

- Lack of starter homes;
- Lack of housing inventory/limited turnover; and
- Lack of 55+ housing.

Opportunities

- Housing opportunities at the former UMass Lowell West Campus site.

Threats

- Lack of affordable housing; and
- Land use conflicts.

The Chelmsford Master Plan Committee developed and sent out a Chelmsford Master Plan Survey to the public for their input. There were 1,017 responses to the survey as of April 18, 2020. The housing related items were as follows:

4. Why do you choose to live in Chelmsford? Check all that apply.

<u>Answer Choices</u>	<u>Percent</u>	<u>Number of Response</u>	<u>Rank</u>
Community character/rural setting	56.2	568	1
Family roots/ties	37.4	378	3
Cost of housing	25.3	256	6

7c. Housing: please indicate whether you would rate the following services, facilities or characteristics, as they relate to Chelmsford as excellent, good, fair or poor.

<u>Issue</u>	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>No answer</u>
Diversity of housing types	105/10.4%	506/50.3%	233/23.1%	63/6.3%	100/9.9%
Housing affordability	42/4.2%	317/31.5%	400/39.7%	185/18.4%	64/6.4%
Available housing options for seniors	21/2.1%	118/11.7%	213/21.1%	158/15.7%	499/49.5%

8. Chelmsford is actively engaged in an Age Friendly Initiative to further enhance its enviable suite of programs/services designed to improve the quality of life, mobility and independence of its residents. In order to assess the Town's unmet needs in these areas, it is critical to seek and receive inputs from the residents. On a scale of 1 to 5, how important is it for Chelmsford to have the following features?

<u>Features</u>	<u>1. Not Important</u>	<u>2. Slightly Important</u>	<u>3. Moderately Important</u>	<u>4. Very Important</u>	<u>5. Extremely Important</u>
Adequate information about local and regional affordable housing options.	46/4.6%	105/10.6%	257/25.9%	342/34.4%	244/24.6%

11. On a scale of 1 to 5, how important is it for the Town to establish any of the following as priorities?

<u>Priorities</u>	<u>1. Not Important</u>	<u>2. Slightly Important</u>	<u>3. Moderately Important</u>	<u>4. Very Important</u>	<u>5. Extremely Important</u>
Creating Affordable Housing	165/16.6%	186/18.7%	278/28.0%	202/20.3%	163/16.4%
Creating housing for seniors	48/4.8%	150/15.1%	338/34.0%	267/26.9%	191/19.2%
Revising the zoning regulations to allow single-family homes on smaller lots in certain areas.	331/33.6%	197/20.0%	232/23.6%	143/14.5%	81/8.2%
Creating design guidelines for new development.	81/8.3%	128/13.0%	236/24.0%	277/28.2%	260/26.5%

12. If every Chelmsford resident were given \$100 in town funds, which three projects or initiatives would you fund with your share?

<u>Answer Choices</u>	<u>Responses</u>	<u>Percent</u>	<u>Rank (out of 14)</u>
Create affordable housing	135	13.3	10
Create more senior housing	166	16.3	7 (tied)

ISSUES AND OPPORTUNITIES

Consistent with the previous decade (2000-2010), the period from 2010 to 2020 saw 750 new dwelling units built in the Town. A significant majority of these new dwelling units were approved as multi-family Chapter 40B projects through local zoning overlays. By February 2021, Chelmsford had exceeded its 10% affordable housing goal. The Town of Chelmsford should continue to provide a broad range of housing opportunities for its residents who wish to remain in Chelmsford, with a particular focus on senior housing and affordable options. Affordable housing means housing that is priced consistent with the economic capabilities of individuals and their families and is not intended to encompass only housing that could be developed under Chapter 40B. A diversity of affordable housing at all price ranges provides a vibrant and dynamic community and best meets the needs of its inhabitants.

The Town of Chelmsford enjoys one of the best relationships with its Housing Authority that any community can have. With the Chelmsford Housing Authority as an active partner, the Town can successfully develop, maintain and manage a level and diversity of housing units that addresses the housing needs of its residents. The Town adopted its third *Affordable Housing Plan* in 2017 and will build upon this section of the Master Plan to begin its work. While the focus of the Affordable Housing Plan is to generate strategies that address the affordable housing production issues established under Chapter 40B, the purpose of this Housing section of the Master Plan is to highlight the housing needs of the community and to make recommendations on how the Town can address all housing issues facing the community during the next ten years.

In addressing Chapter 40B, which established a goal that 10% of housing in Chelmsford be affordable to families and individuals at 80% or less of the median household income, the Town, in partnership with the Chelmsford Housing Authority (“CHA”), has adopted a proactive approach to increase the level and diversity of Affordable Housing in the community, consistent with the resources of the Town and consistent with the needs of its residents. A proactive approach ensures that Affordable Housing will be designed and located in areas that will not adversely affect the character and nature of the traditional neighborhoods in the Town. By working with the CHA, the Town can ensure that the proposed housing addresses the needs of seniors, young families and special needs populations, in a manner that is consistent with the neighborhood characteristics. This partnership will be critical to avoiding the development of any “unfriendly” Chapter 40B projects.

The Town should explore opportunities to purchase available property and to continue its longstanding relationship with the Community Preservation Committee (CPC). With an additional \$ 140,000 in unallocated community housing funds for FY 2020 plus what was available previously, the Town, CHA and CPC can move ahead to address housing supply needs. Outlined in Table 5.27 is the current status of the Potential Housing Sites identified by the HAB

in the Chelmsford Affordable Housing Plan in 2017. The Potential Housing Sites map is also attached. The Town needs to update these Potential Housing Sites to provide new opportunities for affordable housing to maintain its 10% affordable housing level after the 2020 U.S. Census provides the updated year-round housing unit figures. The site are identified in the 2017 Chelmsford Affordable Housing Plan.

Table 5.27: Chelmsford Potential Housing Sites

Site Name	Address	Parcel ID	Acreage	Total Assessed Value	Zoning	Current Status
93 Brick Kiln Road	93 Brick Kiln Road	88-271-3	9.59	\$186,900	IA	70% wetlands/ considered for a 124 unit Ch. 40B project
111 Chelmsford Street	111 Chelmsford Street	62-298-1	0.50	\$689,900	CD	Former Town and Country apartments
271-279 Chelmsford Street	271 Chelmsford Street	52-203-7	0.48	\$456,300	CC	2-3 family home
271-279 Chelmsford Street	277 Chelmsford Street	52-203-6	0.22	\$80,800	CC	Driveway
271-279 Chelmsford Street	279 Chelmsford Street	52-203-5	0.39	\$101,300	CC	Mostly driveway
280-284 Chelmsford Street	280 Chelmsford Street	52-140-18	0.48	\$205,400	RB	Undeveloped, overgrown
280-284 Chelmsford Street	284 Chelmsford Street	52-140-15	0.52	\$312,700	RB	Single-family home
7 Gorham Street/ 1 Pinehill	7 Gorham Street	44-172-5	0.48	\$4,111,000	RB	Approved Ch. 40B townhouse project
7 Gorham Street/ 1 Pinehill	1 Pinehill	44-172-4	1.52	\$170,900	RB	Approved Ch. 40B townhouse project
236-240 Groton Road (23-92-2/23-92-4)	236 Groton Road	23-92-1	6.00	\$282,500	RB	11 duplex townhouses
267-282 Mill Road	276 Mill Road	97-328-9	4.85	\$22,373,800	IA	New Mill and 3 apartments
59-65 Princeton Street	59-65 Princeton Street	13-48-5	1.85	\$2,710,600	RC	New 18 unit apartment project under development
255 Princeton Street	255 Princeton Street	20-74-1	34.00	\$2,485,200	RB	Under consideration as a multi-family development project
128 Riverneck Road	128 Riverneck Road	65-271-15	10.00	\$450,900	IA	Two-family home/ trucking/RV equipment 50% wet
191 Riverneck Road	191 Riverneck Road	64-275-5	5.00	\$918,800	IA	Vacant lot – wooded and overgrown
243 Riverneck Road	243 Riverneck Road	74-275-9	0.67	\$238,000	RB	Abandoned single-family home, flat, cleared land -previously approved 48 unit rental Ch. 40B

Site Name	Address	Parcel ID	Acreage	Total Assessed Value	Zoning	Current Status
271 Riverneck Road	271 Riverneck Road	74-275-18	3.10	\$???	RB	New condominiums
136 Steadman Street	136 Steadman Street	33-110-4	3.78	\$412,600	IA	Single-family home with wooded area in the rear
80-104 Turnpike Road	80 Turnpike Road	85-328-5	0.86	\$1,042,000	IA	Active industrial building
80-104 Turnpike Road	84 Turnpike Road	85-328-6	0.72	\$619,000	IA	Vacant industrial building?
80-104 Turnpike Road	88 Turnpike Road	86-328-19	5.58	\$3,175,000	IA	Recently renovated industrial building?
80-104 Turnpike Road	104 Turnpike Road	86-328-21	0.00	\$31,002,100	IA	The Kinloch apartments – 168 rental units
Woodland Park (Dunstan Road Off)	Woodland Park (Dunstan Road Off)	???	1.3	\$???	RB	Need to confirm parcel location. Vacant lot at end of Dustan Road behind Edgewood Street homes.

Source: 2017 Chelmsford Affordable Housing Plan

These properties were identified as potential housing sites that could be developed as housing in mixed-use developments (housing and commercial) or as part of a Mill Reuse Overlay District that would bring increased value to the property, while maintaining its historical significance in the development of more affordable rental units. The focus upon these groups can be attained through the three strategies – preservation, regulatory and production – outlined in the current Plan.

The UMass West Campus was purchased at auction several years ago and is under consideration for a large multi-family development. Consideration should be given to the use of design guidelines for this property, as well, to ensure that whatever is developed is consistent with the neighborhood characteristics.

Unlike the 2010 Master Plan, the future of housing in Chelmsford is directly impacted by the infrastructure systems, such as sewer or water, and the limited inventory of vacant land. As outlined in the Economic Development chapter, the Weston & Sampson report outlined the severe sewer capacity issues in August 2020. On September 15, 2020 the Sewer Department enacted a one-year limited moratorium on new sewer connections and increases to flows for existing connections. The 2020 Fall Town Meeting approved \$150,000 to conduct a Sewer Capacity Study to look at various options to increase the sewer capacity in the community. The town will need to work with NMCOG and the other communities in the region to address the need for additional sewer and water capacity on a regional basis.

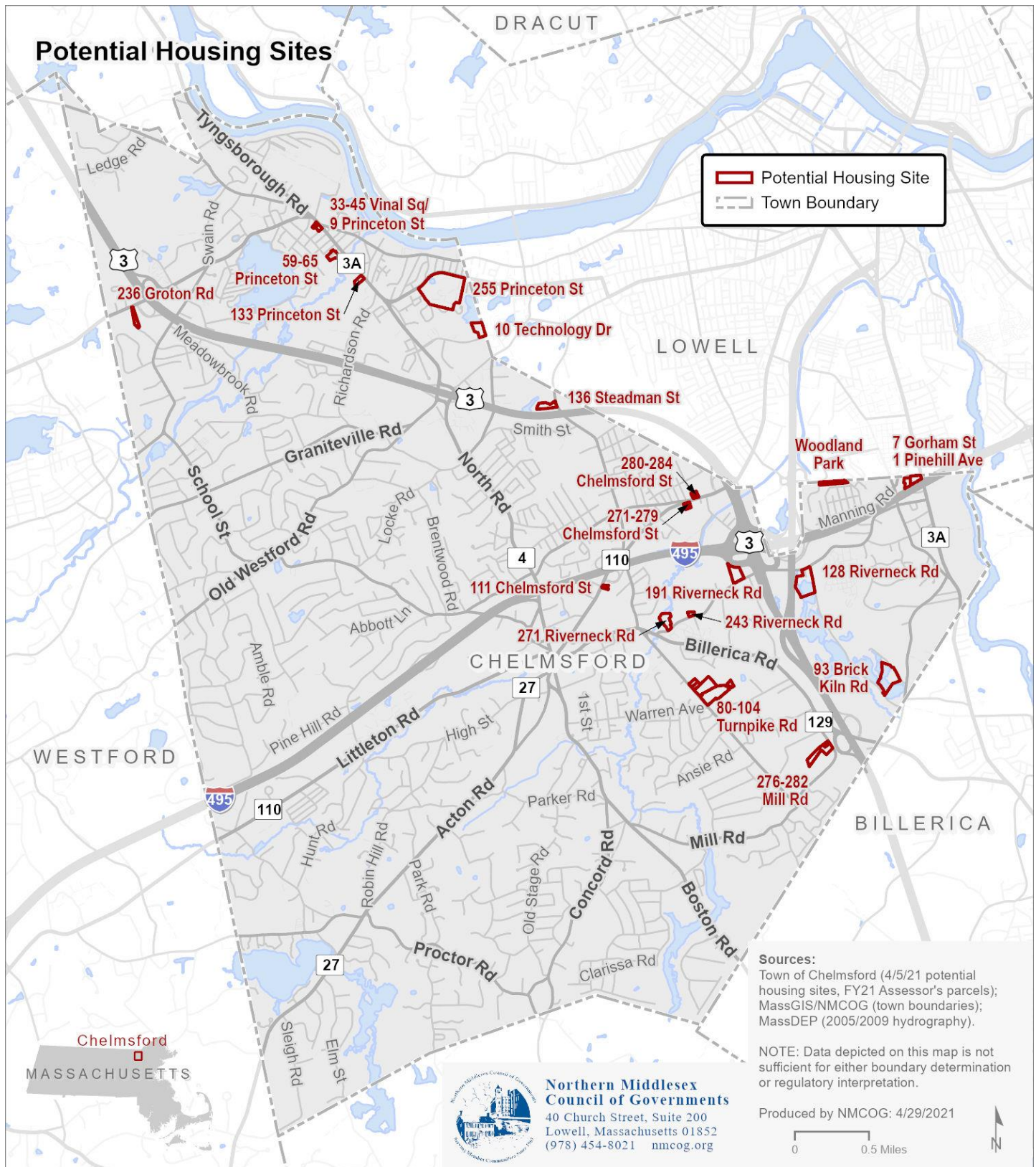
The establishment of the CEIOD zoning bylaw, Center Village zoning overlay, the Route 129 BAOD bylaw and the Inclusionary Housing Bylaw have all provided additional housing opportunities and resulted in constructed projects. While the Town has exceeded its 10% affordable housing goal at 10.43%, it will need to continue to produce affordable housing to deal with the increase in the year-round housing unit figure in the 2020 U.S. Census.

The Town has estimated that there will be 14,461 year-round housing units in 2020, as compared to 13,741 units in 2010. Without the addition of any affordable housing units, the Town would be at 9.9% if these estimates are accurate. Therefore, it is important to update the Potential Housing Sites list and begin to implement these affordable housing projects.

Since the adoption of the Inclusionary Housing Bylaw in Fall 2015, a number of projects have been proposed and considered by the Planning Board and the Housing Advisory Board. The scope and scale of these projects have been varied and the affordability provided has also been wide ranging from a project building the affordable units, a project paying 100% PILO and several projects paying partial PILOs. Based upon this, the Planning Board and the Housing Advisory Board have stated that the original bylaw with a particular attention to the PILO needs to be revisited. To date approximately \$860,000 in PILOs have been deposited in the Housing Stabilization Fund. Moving forward a process should be identified to determine how these funds will be utilized.

Given that significant rental housing stock has been lost due to conversions to condominiums, it will be important for the Town to focus on rental housing developments to address the “affordability” issues related to housing. According to the 2021 Community Needs Assessment conducted by Community Teamwork, Inc., the top community level need in the region was the creation of quality, affordable housing. This concern has been reflected in the input provided by Chelmsford residents through the Master Plan survey as well.

Map 5.3: Potential Housing Sites



RECOMMENDATIONS

5.1 Continue to build upon the partnership with the Chelmsford Housing Authority to create housing through a proactive approach that maintains and increases the supply and diversity of housing in the community.

5.2 Explore opportunities for the Town to continue to purchase available property and/or utilize funds from the Community Preservation Act (CPA) to address the community's housing needs. A comprehensive review of available town-owned properties has been conducted for potential housing development to meet local needs, but has not yet yielded any viable options.

5.3 Target the identified Potential Housing sites for development

5.4 Continue the implementation of the CEIOD zoning bylaw, Center Village Zoning Overlay, the Route 129 BAOD bylaw and the Inclusionary Housing Bylaw.

5.5 Preserve affordable housing through the retention of expiring affordable use properties where financially feasible and through the ongoing partnership with the Housing Authority.

5.6 Prioritize mixed-use redevelopment projects that support the business community and the town's housing goals, and that are consistent with current neighborhood standards

5.7 Increase the availability of rental units in the community to address the growing needs of the elderly, young families and special needs populations.

5.8 Participate in housing rehab programs to support the renovation of older residences.

5.9 Explore the development of an Affordable Housing Trust through the establishment of the Housing Stabilization fund to supplement the current resources made available through CPA funds.

5.10 Monitor/engage with developers on proposals. Work with non-profit entities, such as the Common Ground Development Corporation and the Coalition for a Better Acre, to focus on the development of affordable housing through the use of tax title properties. These efforts can complement the work that the Chelmsford Housing Authority does.

5.11 Submit an Expression of Interest to DHCD to be eligible for funding under the Community One Stop for Growth program. Request certification as a Housing Choice community to be eligible for Housing Choice Infrastructure grants. Maintain a balance between housing growth and maintaining the quality of life in Chelmsford.

5.12 Address infrastructure capacity issues, such as water and sewer that would limit housing opportunities in the future. Develop a Five-Year Plan to address the sewer capacity issues and work with NMCOG, the City of Lowell and the other Greater Lowell communities to collectively address this issue. The economic future of the region depends on resolving this issue.

5.13 The Housing Advisory Board should continue to monitor progress made through the implementation of the *2017 Affordable Housing Production Plan* to be consistent with the new regulations from the Massachusetts Department of Housing and Community Development (DHCD) and begin to plan for its update in 2022.

5.14 Explore options available for additional “in law” or limited accessory apartments, as well as temporary “granny pods” and/or tiny houses. Address the need for “starter homes” to attract new families and diversify the housing stock.

5.15 Continue to streamline, expand, and promote programs that support affordable housing and the ability for residents to age-in-place.

5.16 Increase awareness of current housing options and support the development of new options for Chelmsford residents to age in place through public forums, new bylaws and outreach by stakeholders.

5.17 Educate Chelmsford residents about local options that help seniors remain in their homes, including tax deferrals for the existing homes, home modification programs to make their home more accessible and other initiatives.

5.18 Create a program for affordable services (i.e. a clearinghouse of handyman services) to help those in need with home chores, maintenance, contractor referral and/or help with project management.

VI. NATURAL RESOURCES

INTRODUCTION

Natural resources include land, surface water, streams, wetlands, aquifers, wildlife habitat, open space and riparian corridors, and other ecologically sensitive areas. Cultural resources include historic buildings and their settings, outbuildings such as sheds and barns, archaeological remnants and features, and archaeologically sensitive areas. Landscape features such as stone walls and foundations, burial grounds and cemeteries, trails and historic trees are also an important part of the town's history, contribute to its inventory of cultural resources and are key public assets. The value placed on the preservation of natural and historic resources can play a significant role in defining a community's unique sense of place.

NATURAL RESOURCES

Water Resources

Chelmsford has an extensive hydrological system that includes groundwater, wetlands and surface water, as shown on Map 18. The town is located within the Merrimack River basin, and falls within two subwatersheds of the river basin: the Merrimack, and the Sudbury, Assabet and Concord (SuAsCo). Much of the land in Chelmsford eventually drains into the Concord River, which forms part of the town's eastern border. Surface water bodies account for 2.3% of the town's area (327 acres).²²

The benefits of clean water cannot be overstated. Adequate supplies of clean water are vital to the survival and propagation of fish and other aquatic life, as well as to wildlife and humans. The cost to society of not maintaining or restoring water quality, in terms of public health, economics and other factors, is incalculable.

Goal Statement:

Protection of natural resources reduces flooding, improves water and air quality, reduces stormwater runoff and erosion, and protects wildlife habitat and corridors.

- *Protect and improve the town's natural resources with a primary emphasis on water quality protection.*
- *Institute policies and practices that protect and enhance wildlife habitat.*
- *Improve the maintenance, management and accessibility of existing conservation areas.*
- *Increase public awareness and appreciation for the town's natural resources through public education and outreach.*
- *Address the impacts of climate change and increase resiliency.*

²² 1996 Master Plan for the Town of Chelmsford.

Rivers and Streams

The 180-mile Merrimack River flows through central and southern New Hampshire and northeastern Massachusetts and functions as a critical resource for people and wildlife. It is the second largest surface drinking water source in New England, serving more than 300,000 people in the Greater Lowell area.²³ The portion of the River that flows through Chelmsford is referred to as the “Lower Merrimack River”. Federally-listed bald eagles overwinter here, and it is an important migratory route for waterfowl and songbirds.

The Merrimack River forms the Town’s northeastern border with Lowell and Tyngsborough. Both the Merrimack River and the Concord River are classified as Class B waterways. Designated uses for Class B Waterways, as established by the Massachusetts Department of Environmental Protection (DEP), include recreational uses, fish and wildlife habitat, agricultural and industrial use, and navigation. While the Merrimack River meets Class B standards during normal weather conditions and periods of low flow, under wet weather conditions, the River is negatively impacted by combined sewer overflow (CSOs) from communities north of Chelmsford, such as Nashua and Manchester, New Hampshire. Chelmsford has been active in improving access to the Merrimack River. For example, improvements have been made at Southwell Field, which hosts the only public boat launch between Lowell and New Hampshire.

The Federal Water Pollution Control Act of 1972 and its amendments require that states classify water bodies according to the degree of threat or impairment for designated uses. In 2008, DEP produced the Massachusetts Year 2008 Integrated List of Waters, listing the condition of waters under Sections 303(d) and 305(d) of the Clean Water Act. The list identifies several water bodies in Chelmsford as impaired for one or more uses, requiring the establishment of a Total Maximum Daily Load (TMDL) to set the maximum allowable pollution from point, non-point and natural sources. Both the Merrimack River and the Concord River are listed on the 2008 Massachusetts list of impaired waters.²⁴ The Merrimack River is considered impaired based on the presence of metals and pathogens, while the Concord River impairment factors include metals, nutrients, pathogens and exotic species.

Eleven named streams run through town: Beaver Brook, Crooked Spring Brook, Scotty Hollow Brook, Farley Brook, Putnam Brook, Deep Brook, Stony Brook, Black Brook, Hales Brook, Cold Spring Brook and River Meadow Brook. The lands along the town’s waterways provide some of the most pristine and natural vistas within the community. These streams provide residents with areas for fishing, hiking, and canoeing. In addition, they serve as wildlife corridors and habitat for many species. River Meadow Brook, Stony Brook, and Crooked Spring Brook are stocked with trout by the state each Spring. Black Brook is listed on the 2008 Massachusetts Integrated Waters List as being impaired due to siltation, unknown toxins,

²³ The Merrimack River Watershed Council, www.merrimack.org

²⁴ Department of Environmental Protection, “Massachusetts Year 2008 Integrated List of Waters”.

pathogens and turbidity. Stony Brook is also considered by DEP to be impaired for nutrients, pH, organic enrichment (low dissolved oxygen) and pathogens. Deep Brook is considered impaired due to organic enrichment, low dissolved oxygen and siltation. River Meadow Brook is considered by DEP to be impaired as a result of pathogens.

Natural buffers around surface water bodies are effective barriers against pollutants that might otherwise enter the water from surface runoff or groundwater discharge. Vegetated buffers absorb nitrogen and phosphorous pollution, neutralize organic and hydrocarbon chemicals, and detain sediment, including the heavy metals that often adhere to sediment. The Massachusetts Rivers Protection Act is a powerful tool that restricts development within 200 feet of any perennial river or stream. If properly enforced by the Conservation Commission, the Act will ensure adequate buffering around Chelmsford's perennial streams.

Surface Water Bodies

The quality of surface waters is influenced by the natural ecology, hydrology and geomorphology of the land area they drain, and also by the land use patterns resulting from human activities within their respective basins or watersheds. Chelmsford has two large lakes/ponds: Freeman Lake (also known as Newfield Pond and formerly known as Crystal Lake) and Heart Pond (also known as Hart's Pond or Baptist Pond). At 92.5 acres and 76.8 acres in size respectively, both water bodies have developed shorelines with public access, and are extensively used for recreation. Heart Pond interconnects with the Cranberry Bog Reservation, and is considered by DEP to be impaired due to pathogens. Freeman Lake is also considered to be impaired by metals (mercury), organic enrichment (low dissolved oxygen), noxious aquatic plants and exotic species.

Other significant ponds in town include Swains Pond, Eagle Mill Pond and Russell Mill Pond. Russell Mill Pond was created when water was impounded by a dam initially constructed to serve an industrial facility, and is classified by DEP as impaired based on exotic species and flow alteration.

Surface water quality issues are being addressed through the town's comprehensive sewer project. For ponds and intermittent streams that are not protected by the Rivers Protection Act, Chelmsford should consider establishing and enhancing natural land buffers. This is particularly important for seasonal drainage channels that fill with water during major storm events when pollutant and sediment loads are high. The protection of land around intermittent streams could be explicitly identified as a performance standard for residential and non-residential development.

Hart's Pond, via an Association and the Town, have been chemically treating this water body for invasives during the past decade. Fish die offs have been an annual occurrence due heat waves.

There has been interest in conducting similar chemical treatments to Freeman Lake. In 2018 SŌLitude Lake Management was contracted by the Town of Chelmsford to assess the existing aquatic plant growth conditions in Freeman Pond. The foci of the survey were to document current plant and pond conditions in order to evaluate and develop a recommended management program to control invasive aquatic plant species.

The report stated: “Due to the density and abundance of non-native species throughout the littoral zone within Freeman Lake, we recommend initiating a whole-lake treatment program utilizing the USEPA/MA registered aquatic herbicide Sonar (fluridone) for the initial year of herbicide management. Registered herbicides can be highly effective in areas where physical methods (e.g. hand-harvesting, mechanical harvesting, or benthic barrier use) are impractical, or when quickly spreading non-native species are present, such as fanwort, Eurasian milfoil, curly-leaf pondweed, and brittle naiad. Aquatic herbicides allow for multi-year plant control, limit or eliminate the chance of reproduction through fragmentation, and can effectively manage target species without adverse effects to non-target biota.”

Whole-Lake Sonar Treatment Program inclusive of cursory inspections, FastEST fluridone residue samples, labor, materials is estimated to be \$50,000-60,000. In subsequent years, Budgeting \$10,000-20,000 per year for management of regrowth is suggested, in order to maintain restoration and control within Freeman Lake

Wetlands

The importance of wetlands to public health and the natural environment is well-known and protected by state and federal law. The Massachusetts Wetlands Protection Act gives the Commonwealth and the local Conservation Commission the authority to regulate activities affecting wetlands for the following specific purposes: protection of public and private water supply; protection of groundwater supply; flood control; prevention of storm damage and pollution; protection of land containing shellfish; protection of fisheries; and protection of wildlife habitat.

The Town of Chelmsford contains approximately 1,379 acres of wetlands and floodplain, accounting for almost 9.3% of the Town's total land area. As is typical of the region, more than half of the wetlands are non-forested, though extensive wooded wetlands remain in South Chelmsford. Chelmsford's wetlands vary in size from less than one acre to approximately 125 acres, and are generally associated with waterways and water bodies, including the Merrimack River, Heart Pond, Freeman Lake, Hales Brook, Stony Brook and Beaver Brook. The smaller tributaries that flow into these streams also contain wetland jurisdictional areas, as well as buffer zones that fall under the jurisdiction of the Chelmsford Conservation Commission.

The Town of Chelmsford enacted a local wetlands bylaw in 1996, and the bylaw was updated in 2009 by strengthening areas of jurisdiction and setbacks. The purpose of Chapter 187 is to “protect the wetlands, water resources, flood prone areas, and adjoining upland areas...by

controlling activities deemed by the Conservation Commission likely to have a significant or cumulative effect on Resource Area values including but not limited to the following: public or private water supply, groundwater supply, flood control, erosion and sedimentation control, storm damage prevention, water quality, prevention and control of water pollution, fisheries, fresh water shellfisheries, wildlife habitat, rare species habitat, agriculture, aquaculture, recreation and aesthetic values deemed important to the community”. The local wetlands bylaw includes a 50-foot no-build zone, a 30-foot no impervious surface restriction, and a 25-foot no-disturbance zone.

The 2003 Chelmsford Open Space and Recreation Plan recommended that the Town develop a process for transferring tax title lands containing wetlands to the Conservation Commission as a means of further protecting these resource areas. It also recommended that the town strengthen its local wetland bylaw to include adjacent upland resource areas. The Plan further recommended that the Town work with Billerica and Carlisle to extend Great Meadows as a wetland corridor along the Concord River.

Aquifer Recharge Areas

Groundwater recharge is part of the hydrologic cycle in which aquifers are recharged by precipitation, surface water infiltration, or hydrologic exchange with other aquifers. Since recharge of aquifers generally occurs through inflow from the surrounding drainage basin and nearby surface water bodies, the quality of surface water is critical to the quality of ground water, and therefore, to drinking water.

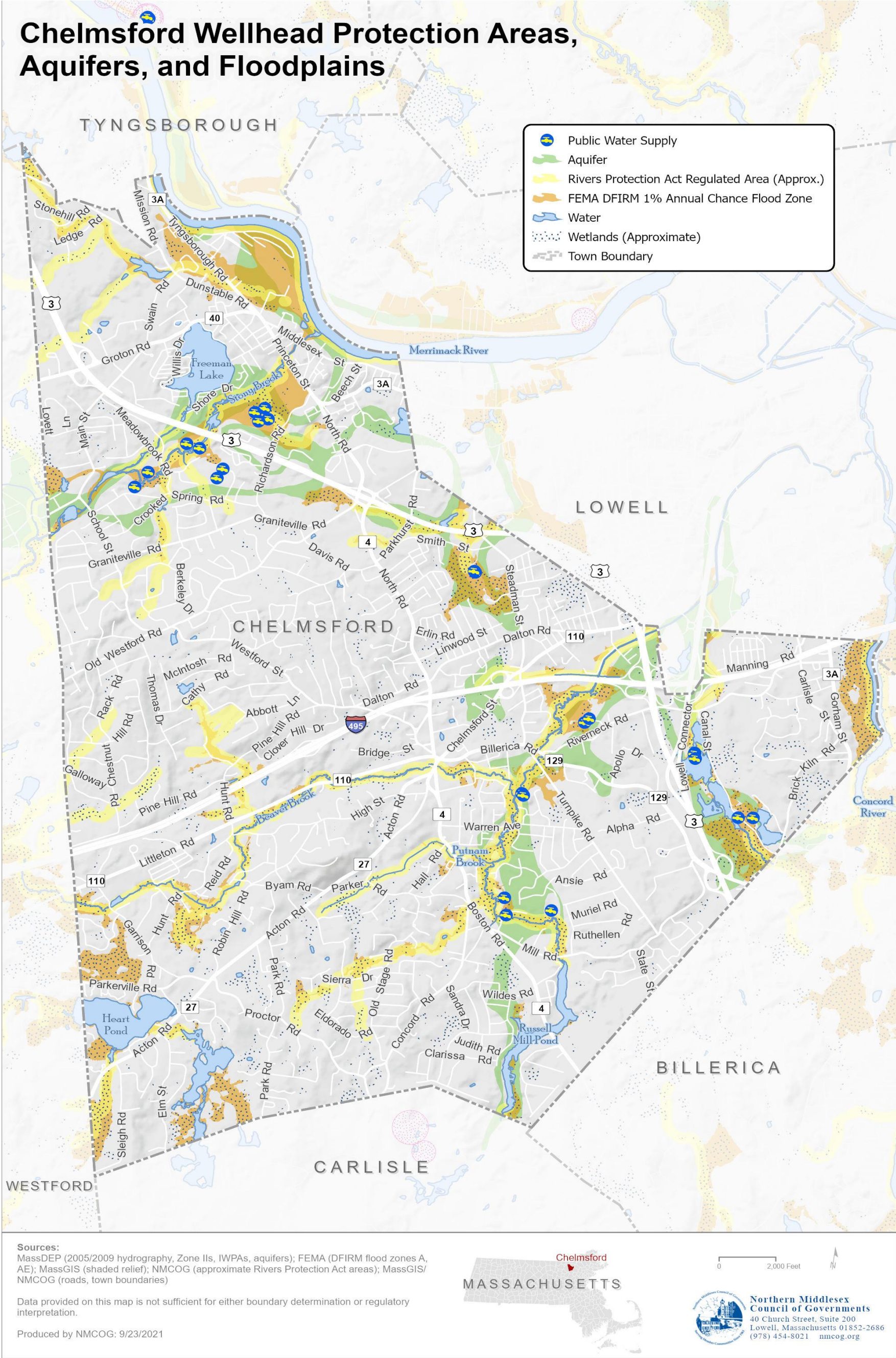
All of Chelmsford’s drinking water originates from aquifers. Overall the Town is serviced by public water systems managed by three independent water districts: the Chelmsford Water District located at 20 Watershed Lane, the East Chelmsford Water District located at 75 Canal Street and the North Chelmsford Water District located at 74 Washington Street (See Map 6.1). The town’s aquifers, both high and low yield, closely correspond to the Russell Mill Pond, River Meadow Brook, Stony Brook, Hales Brook and Black Brook watercourses.

The aquifers in Chelmsford are rather significant in size. The Town’s water districts have indicated that the capacity exists to increase water production by 20% to accommodate future growth. However, significant future expansion beyond that level may have to come from the Merrimack River rather than groundwater.

The town has adopted an Aquifer Protection Overlay District to protect the town’s drinking water supply and to limit adverse effects from inappropriate development and use of the land. Certain land uses within the overlay district are prohibited or allowed only by special permit.

Under the State’s Sustainable Water Management Initiative (SWMI), EEA developed a framework to promote sustainable use of the Commonwealth’s water resources. This framework included methods for calculating the safe yield of basins, seasonal streamflow criteria for

MAP 6.1: WATER RESOURCES



subbasins, and subbasin baselines against which additional requests for water withdrawal could be compared. In particular, the seasonal streamflow criteria included the determination of biological conditions for fluvial fish, as well as groundwater withdrawal levels. Elements of this framework were subsequently incorporated into the 2014 updates to the Water Management Act

Chelmsford has 13 subbasins, and have been assigned groundwater withdrawal categories (GWC) based on the ratio of the 2000-2004 groundwater withdrawal volume to the unimpacted median monthly flow for August, as described in Table 6.1 below.

Table 6.1: Subbasin Groundwater Withdrawal Categories

MWI Subbasins	Category	Groundwater Withdrawal %
13069	1	>0-3%
12044	2	>3-10%
13034, 12039	3	>10-25%
12045, 12043	4	>25-55%
13044,13045, 13035, 12042	5	>55%
13092, 13089, 13073	No Data	No Data

Sustainable Water Management Initiative Interactive Map created by the Executive Office of Energy and Environmental Affairs, http://maps.env.state.ma.us/flexviewers/SWMI_View/index.html

Of these 13 subbasins, three (Subbasins 13035, 12042, and 12043) in the northeastern and northwestern portion of the Town are classified as having greater than 25% August net groundwater depletion (NGD), calculated based upon the median August flow data compared to water withdrawals and returns in the basin.

Much of the town's area has been assessed at Category 5, indicating that the habitat for riverine fish has undergone 65% or greater alteration to its range. This has been disputed by the Chelmsford Center Water District.

Flood Hazard Areas

The FEMA floodplain maps were updated in 2014 and subsequently voted at Town Meeting. The Town has reported recurrent flooding problems along Tyngsborough Road (Route 3A) in North Chelmsford when the Merrimack River is at flood stage. The severity of this flooding has been significant enough to warrant closing of the roadway for days at a time. The flooding in this area affects the Williamsburg Condominiums, along with Butterfield and Sleeper Streets.

In addition, Stony Brook has a 100-year flood plain that extends back from its confluence with the Merrimack River and under Route 3. There is also significant flood plain throughout a large portion of River Meadow Brook's watershed, much of it extending upstream from where it crosses under Interstate 495. In 2002, the River Meadow Brook floodplain elevation was increased from 106 feet to 108 feet through the FEMA amendment process. There are seven dams located within Chelmsford, none of which are classified as high hazard, as shown in Table 6.2 on the following page.

Table 6.2: Hazard Classification of Chelmsford Dams²⁵

Dam Name	Impoundment Name	Hazard Class	Downstream Population
Stony Brook Dam	Stony Brook	Significant	500
Crooked Spring Dam	Crooked Spring Pond	Significant	100
Lowell Sportsmans' Club Dam	Scotty Hollow Brook	Low	N/A
Swains Pond Dam	Swains Pond	Low	200
Heart Pond Dam	Heart Pond	Significant	50
Russell Mill Pond Dam	Russell Mill Pond	Significant	300
Newfield Pond Dam	Freeman Lake	Low	200

Source: Massachusetts Department of Conservation and Recreation

The Town adopted the Massachusetts Department of Conservation and Recreation (DCR) model flood plain bylaw in April 2004 and updated the bylaw in 2014. The overlay bylaw covers all special flood hazard areas designated on the National Flood Insurance Program, Flood Insurance Rate Map (FIRM). No new structures may be constructed and no existing buildings may be altered within the floodplain district, except by special permit from the Zoning Board of Appeals.

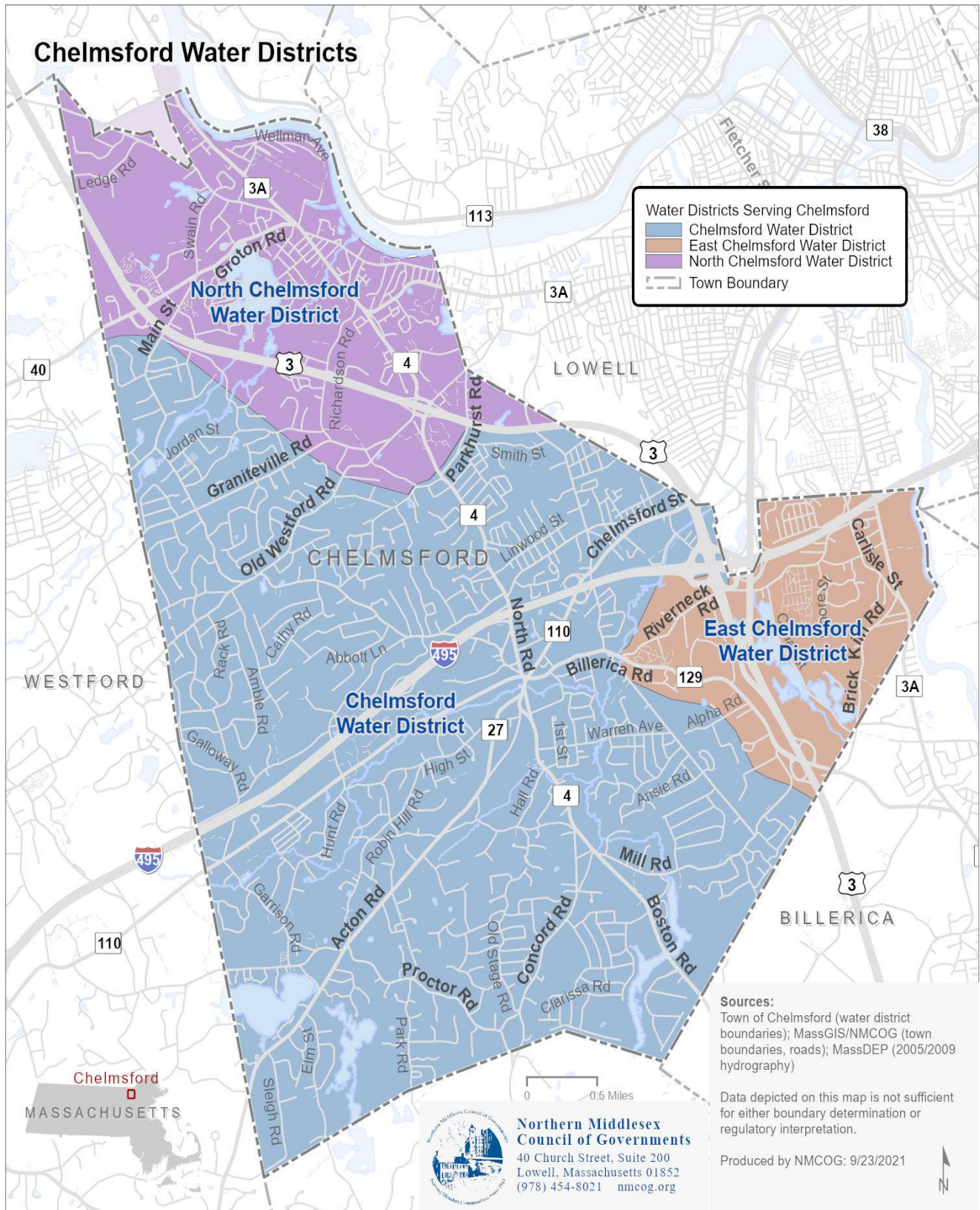
Geology and Landscape

Located within the Merrimack Valley, Chelmsford's terrain generally varies from 100 to 200 feet above sea level, with the highest point in town being Robbins Hill at 408 feet. On a clear day during the winter months when the trees have lost their leaves, one can see the City of Boston from this peak. This hill also represents an interesting geologic feature given its limestone composition and neutral soil, which supports a natural habitat unique to this area of the state. The town is divided into two drainage basins: the Merrimack and the Concord. The glaciers that covered much of New England originally formed the Town's landscape and it continues to be shaped by its rivers. The erosion and accumulation of organic materials on the land since the glaciers receded, has created a diversity of soil types. Large deposits of sand and gravel were left behind by glacial melt water. Nonetheless, the crust of the earth is still visible in bedrock outcroppings, quarries and road cuts. The surficial geology of the town can be depicted on the Map 6.2. Chelmsford is known for its granite, which is mined at the Fletcher Granite Company, located on the town's border with Westford. The quarry has been active since the early 1800s. Limestone deposits extend from Robbins Hill to the Limestone Quarry reservation off Route 110.

Chelmsford has a multitude of surface water bodies that contribute to its landscape character, which are discussed further in the Water Resources section of this document. Most of the streams are surrounded by wetlands and provide natural wildlife habitat and scenic vistas. The 310-acre Cranberry Bog Reservation, which was purchased by the Town in 1986, is one of the town's most unique features. Half of the site lies within the Town of Carlisle and includes 40 acres of active cranberry bog.

²⁵ Pre-Disaster Mitigation Plan for the Northern Middlesex Region, Northern Middlesex Council of Governments, July 2006

MAP 6.2: WATER DISTRICTS



Soils

Soil is an important resource that impacts hydrology, supports plant life and is critical to agriculture. Soils are vulnerable to erosion, which can impact streams and water quality. Soils are classified according to their origin, formation and identifiable properties. Soils with similar properties comprise a soil association.

According to the most recent soil survey done by the Natural Resources Conservation Service in 1989, there are thirty-seven different mapped soil units found in Chelmsford. These can be classified into five main soil associations: Urban Land; Mucky; Paxton, Hollis, Woodbridge; Scituate Essex, and Windsor Hinckley, which are shown on Map 6.3. Soils that form in glacial outwash, such as the Hinckley and Windsor series, transmit groundwater more readily than soils formed in glacial till (such as Paxton and Canton soils) or shallow-to-bedrock soils (such as Charlton-Hollis-Rock Outcrop Complex soils). Upland outwash soils are at a greater risk for drought than upland till soils and tend to be lower in nutrients. Deep, very poorly drained organic soils, such as Freetown Muck, support wetland communities, are high in nutrients, and store water due to their location in depressions and topographic low areas.

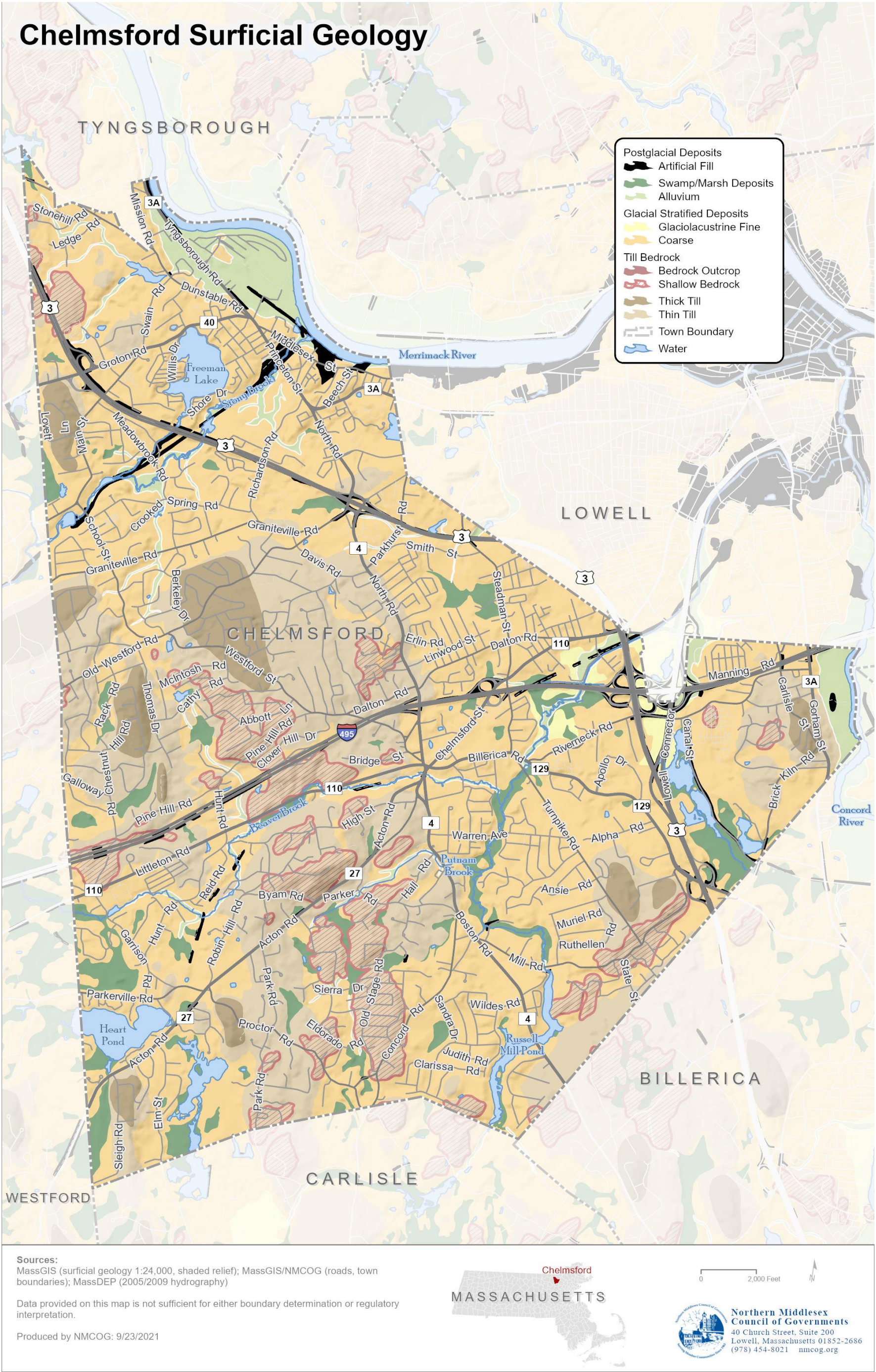
The largest soil association found in Chelmsford, in terms of extent, are the Urban Land soils that are made up of sand and silty loams over glacial till. These are moderately to well-drained soils that lend themselves to urban development.

The second largest soil group is the excessively well-drained loamy sands of the Hinckley, Windsor, Carver, Merrimack and Suncook soils. These soils are comprised of glacial outwash and tend to be loose, sandy material that is extremely permeable and does not lend itself to septic systems, or other uses with high probability of groundwater contamination. According to a 1995 study by Weston and Sampson, over 50 percent of Chelmsford's land area is not suitable for septic systems.

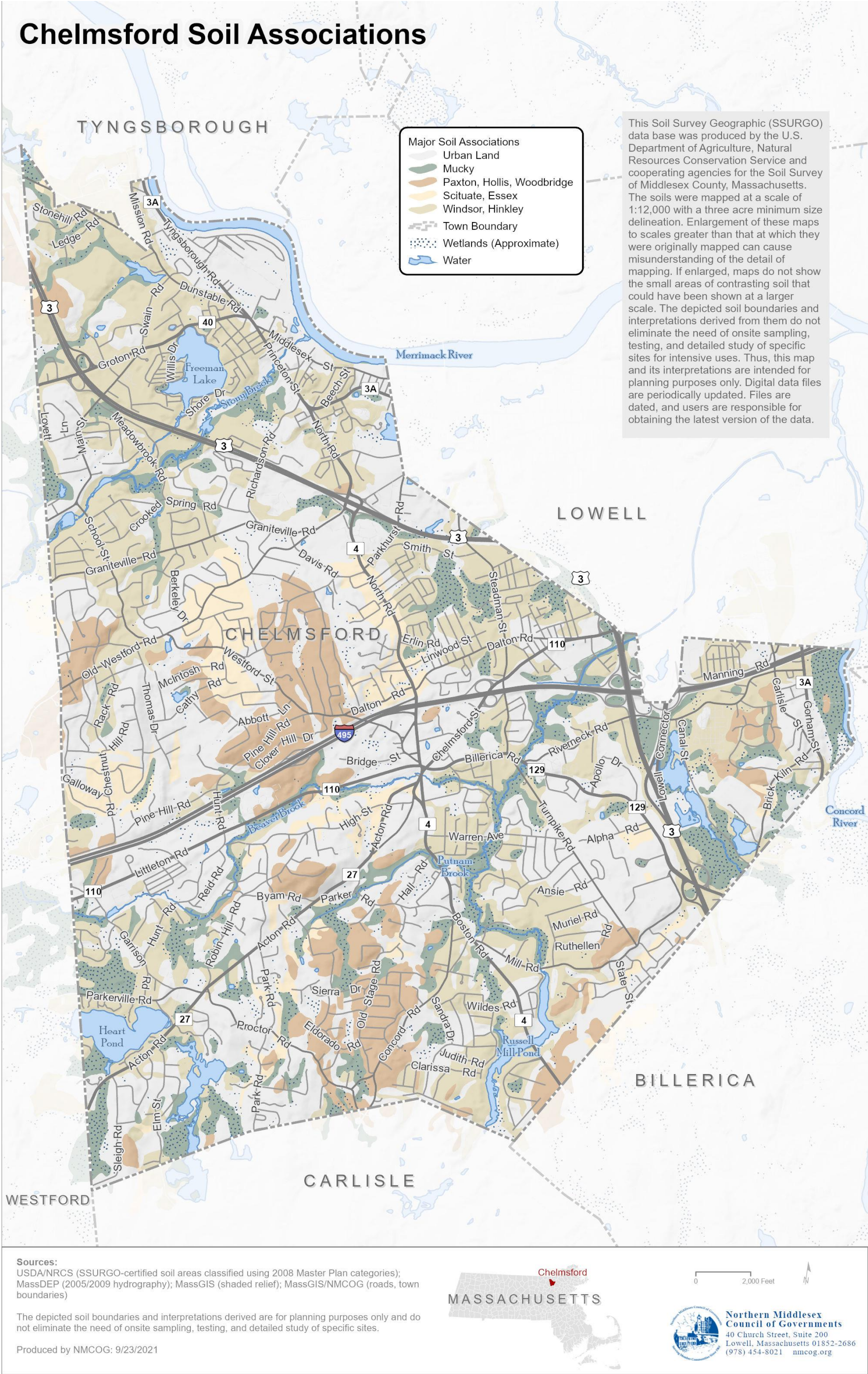
The third soil group consists of small areas of hydric soils found along and under water bodies. These soils are wet most of the year, high in organic matter, relatively flat and are found in areas with a high water table. These soils are not well suited to development and consist of muck of the Saco Variant, Swansea and Freetown subseries.

The fourth soil association consists of Scituate/Essex soils which have major limitations related to slow permeability in the dense till substratum and seasonal high water tables. Large surface and subsurface stones and boulders may interfere with excavation. Erosion hazards are likely during development, so measures should be taken to prevent erosion.

MAP 6.3 SURFICIAL GEOLOGY



MAP 6.4: SOIL ASSOCIATIONS



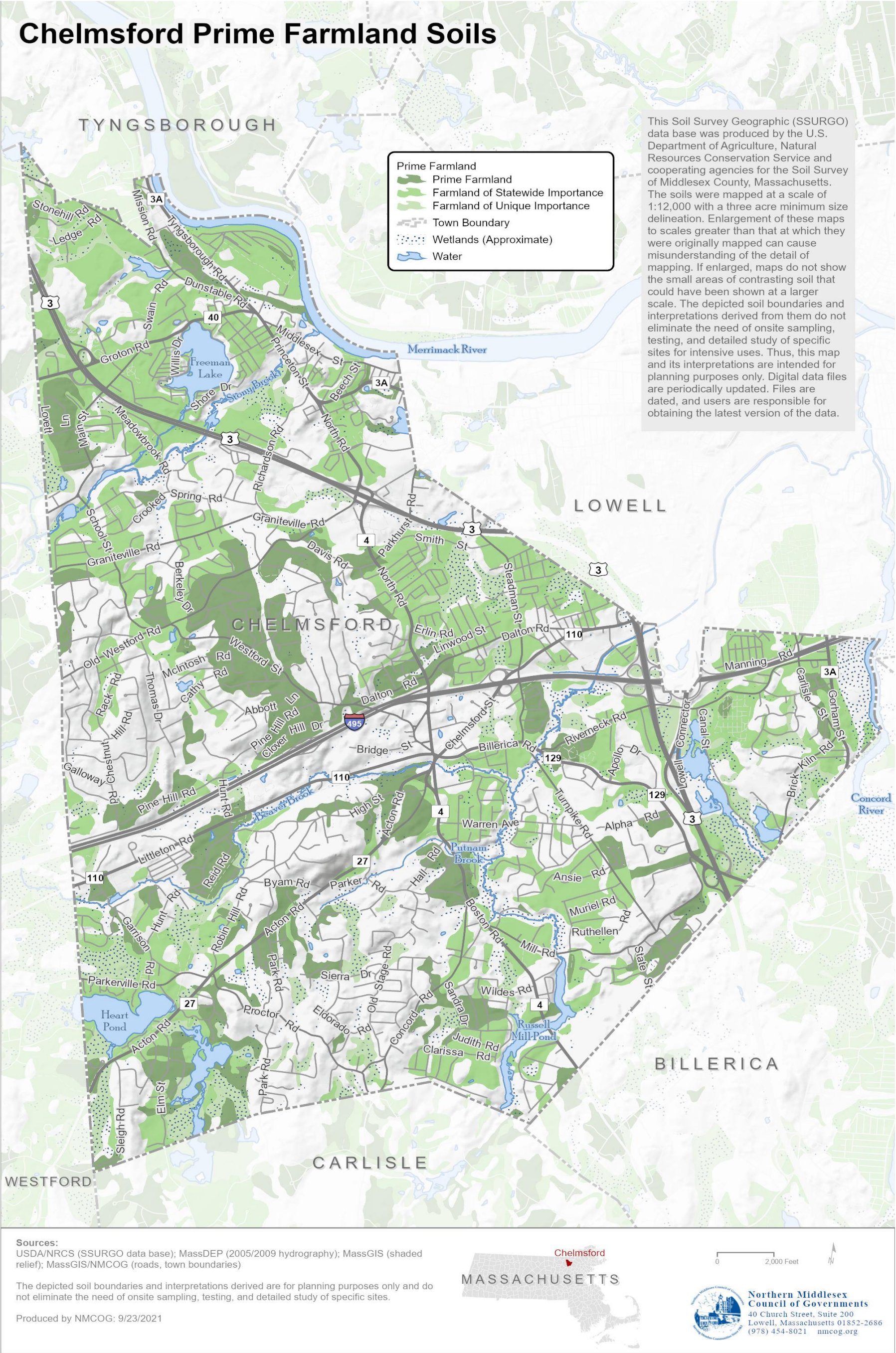
The last major soil group is the highly erodible soil found on slopes greater than 15 percent. Given that soil erosion is a significant problem throughout the region, these soils need to be given careful consideration before disturbance takes place. These soils include fine sandy loams of the Canton and Montauk series, and of the Charlton-Hollis-Rock-Outcrop Complex, Hollis Rock-Outcrop-Charlton Complex and the Rock Outcrop-Hollis Complex.

Farmland Soils

As shown on Map 6.4, a total of 1,930 acres, or 13% of the Town's land area consists of Prime Farmland Soils, which are especially well-suited for agriculture. These soils are considered to be valuable for the production of crops. Chelmsford was originally established as an agrarian community but most farms have been lost to development. As outlined in the Land Use section of this document, in 2008, 265 acres or 2.3% of the Town's land area consisted of lands under Chapter 61, 61A and 61B. Chelmsford's 2017 Open Space and Recreation Plan recommended that the Town preserve agricultural land for farming and wildlife habitat.

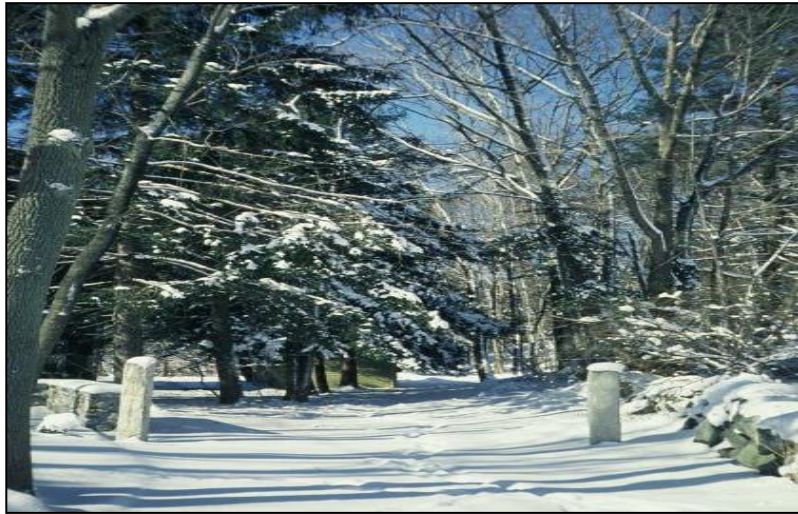
Since 2010 the Town has preserved via acquisition a number of last remaining large agricultural parcels using CPC funds. These include the Sheehan Farm, Sunny Meadows Farm. In addition the Town has two community gardens located at Sunny Meadows and Wotton Street.

MAP 6.5: PRIME FARMLAND SOILS



Vegetation

Chelmsford is located within the transitional zone of the New England forests. Sections of the town are comprised of northern and southern forest features, which include northern forest mixes such as hardwood, hemlock and white pine, and southern forest mixes such as oak, hickory and other hardwoods. Oak, hickory, birch, maple and Eastern white pine dominate the canopy,



Bartlett Woodlot in winter (Source: Chelmsford Land Conservation Trust)

while sassafras, ferns, wildflowers, and assorted shrubs comprise the understory. The forested areas are largely located on post-agricultural land where farming ceased many years ago. The largest remaining expanse of forested land in Chelmsford is located in the southeast, in the area of Russell Mill Pond (132 acres). Other significant forested areas include the Thanksgiving Forest (45 acres) and the Concord Road Forest (12 acres).

The vegetation pattern in Chelmsford is typical of that found in a developed suburban landscape. With the exception of the above mentioned forested stands, the “urban forest” in Chelmsford is composed of small forest areas and individual trees in back yards, behind and between subdivision developments, along roadways, and in parking lots. The primary vegetation found within these developed areas consists mainly of domestic landscaping plants. As large areas of forest become less common, management of the remaining urban forest will become increasingly more important.

Vacant lots and fallow fields are populated by grasses that include foxtail, broom bear, red top, fescue, orchard, Kentucky blues, and timothy. Field species such as red clover, wild carrot, meadow sweet, yarrow, goldenrod, cinquefoil, sorrel, and ragweed are also found in these locations.²⁶ Most wetland areas are dominated by red maple. Fresh water meadows surrounding some of the town’s streams have reeds, woodgrass, wild millet, spike rush and sedge, which are all important to wildlife that use freshwater and field habitat.

The diversity of plant communities within the town provides food and habitat for wildlife. Table 6.3 on the following page contains a partial list of plant species found within the Town:

²⁶ Chelmsford Open Space and Recreation Plan Update, 2003.

Table 6.3 :Partial List of Plant Species Found Within Chelmsford

Common Name: <i>Scientific Name</i>	Common Name: <i>Scientific Name</i>	Common Name: <i>Scientific Name</i>
Black Oak: <i>Quercus velutina</i>	Grey Birch: <i>Betula populifolia</i>	Silky dogwood: <i>Cornus amomum</i>
Scarlet Oak: <i>Quercus coccinea</i>	White Birch: <i>Betula papyrifera</i>	Shadbush: <i>Amelanchier arborea</i>
Red Oak: <i>Quercus rubra</i>	Black Birch: <i>Betula lenta</i>	White Ash: <i>Fraxinus americana</i>
Chestnut Oak: <i>Quercus prinus</i>	River Birch: <i>Betula nigra</i>	Green Ash: <i>Fraxinus pennsylvanica</i>
White Oak: <i>Quercus alba</i>	Black Cherry: <i>Prunus serotina</i>	Aspen: <i>Populus tremuloides</i>
Pin Oak: <i>Quercus palustris</i>	Black gum: <i>Nyssa sylvatica</i>	Big-toothed Aspen: <i>Populus grandidentata</i>
Scrub Oak: <i>Quercus ilicifolia</i>	Maple-leaved Viburnum: <i>Viburnum acerifolium</i>	American Hazlenut: <i>Corylus Americana</i>
Swamp White Oak: <i>Quercus bicolor</i>	White Pine: <i>Pinus strobus</i>	Chestnut: <i>Castanea dentate</i>
Red Maple: <i>Acer rubrum</i>	European buckthorn: <i>Rhamnus frangula</i>	Hemlock: <i>Tsuga canadensis</i>
Sugar Maple: <i>Acer saccharum</i>	Sassafras: <i>Sassafras albidum</i>	Beech: <i>Fagus grandifolia</i>
Silver Maple: <i>Acer saccharinum</i>	Flowering Dogwood: <i>Cornus florida</i>	Hickory: <i>Carya ovata</i> , <i>C. tomentosa</i> , <i>C. glabra</i> , and <i>C. ovalis</i>
Mountain laurel: <i>Kalmia latifolia</i>	Buttonbush: <i>Cephalanthus occidentalis</i>	Sweet pepper bush: <i>Clethra alnifolia</i>
Spicebush: <i>Lindera benzoin</i>	Swamp azalea: <i>Rhododendron viscosum</i>	Arrow wood: <i>Viburnum dentatum</i> var. <i>lucidum</i>
Swamp candles: <i>Lysimachia terrestris</i>	Black willow: <i>Salix nigra</i>	Cottonwood: <i>Populus deltoids</i>
Witch hazel: <i>Hamamelis virginiana</i>	Shagbark and other hickories: <i>Carya ovata</i> , <i>C. labra</i> and <i>C. ovalis</i>	Low-bush blueberries: <i>Vaccinium angustifolium</i>
Highbush blueberries: <i>Vaccinium corymbosum</i>	Speckled alder: <i>Alnus incana</i> spp. <i>rugosa</i>	Smooth alder: <i>Alnus serrulata</i>
Winterberry: <i>Ilex verticillata</i>	Nannyberry: <i>Viburnum lentago</i>	Huckleberry: <i>Gaylussacia baccata</i>
Elderberry: <i>Sambucus canadensis</i>	Partridgeberry: <i>Mitchella repens</i>	Bracken fern: <i>Pteridium aquilinum</i>
Cinnamon fern: <i>Osmunda cinnamomea</i>	Ostrich fern: <i>Matteuccia struthiopteris</i>	Christmas fern: <i>Polystichum acrostichoides</i>
Sensitive fern: <i>Onoclea sensibilis</i>	Royal fern: <i>Osmunda regalia</i>	Pink lady slipper: <i>Cypripedium acaule</i>
Club mosses: <i>Lycopodium</i> spp	False nettle: <i>Boehmeria cylindrical</i>	Canada mayflower: <i>Maianthemum canadense</i>
White wood aster: <i>Aster divaricatus</i>	Indian cucumber: <i>Medeola virginiana</i>	Water parsnip: <i>Sium suave</i>
Wintergreen: <i>Gaultheria procumbens</i>	Wild sarsaparilla: <i>Aralia nudicaulis</i>	Poison Ivy: <i>Toxicodendron radicans</i>
Poison sumac: <i>Toxicodendron vernix</i>	Skunk cabbage: <i>Symplocarpus foetidus</i>	Marsh marigold: <i>Caltha palustris</i>
Meadowsweet: <i>Spiraea alba</i> var. <i>latifolia</i>	Male-berry: <i>Lyonia ligustrina</i>	Star flower: <i>Trientalis borealis</i>
Perfoliate bellwort: <i>Uvularia perfoliata</i>	False Solomon's Seal: <i>Maianthemum racemosum</i>	Early meadow rue: <i>Thalictrum dioicum</i>
False foxgloves: <i>Aureolaria flava</i> , <i>A. pedicularia</i> , and <i>A. virginica</i>	Little blue stem grass: <i>Schizachyrium scoparium</i>	Pennsylvania sedge: <i>Carex pensylvanica</i>
Awned sedge: <i>Carex crinita</i>	Bugleweeds: <i>Lycopus</i> spp.	Poverty grass: <i>Danthonia spicata</i>

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), Chelmsford is known to have six (6) plant species classified as state endangered, threatened, or species of special concern.²⁷ Table 6.4 on the following page lists these species as well as their state designations. Most of these species have not been observed in Chelmsford for over a century.

²⁷ Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife, www.state.ma.us/dfw

Table 6.4: Plant Species Considered Threatened, Endangered Or Of Special Concern

Common Name	Scientific Name	Designation	Date Last Observed
Purple Needlegrass	<i>Aristida purpurascens</i>	Threatened	1907
New England Blazing Star	<i>Liatris scariosa var. novae-angliae</i>	Special Concern	1900
Stiff Yellow Flax	<i>Linum medium var. texanum</i>	Threatened	1902
Lion's Foot	<i>Nabalus serpentarius</i>	Endangered	1914
Adder's-tongue Fern	<i>Ophioglossum pusillum</i>	Threatened	1884
Wild Senna	<i>Senna hebecarpa</i>	Endangered	1902

Source: Massachusetts Natural Heritage and Endangered Species Program, 2021

Invasive species are common in many areas of town. Invasive and exotic species such as multiflora rose, European buckthorn, and Oriental bittersweet are common in the hedgerows, roadsides, overgrown pastures and orchards. Purple loosestrife is also common in the wetlands of Chelmsford. These invasive species crowd out native species. The 2017 Open Space and Recreation Plan recommended that the Town initiate an invasive species identification and control program, working with the Invasive Plant Atlas of New England. Presently, there is no management plan in place for controlling invasive species that threaten native plant communities.

Fisheries and Wildlife

Chelmsford's substantial woodlands, wetlands, and extensive pastures and open fields support a rich and diverse population of birds, mammals, amphibians, reptiles and other wildlife. In addition to common species, there have been recent sightings of rare or less well-known species such as moose and black bear. The town's open fields host large flocks of nesting bobolinks, which are declining statewide due to the loss of grassland habitat. In winter, snow buntings can occasionally be seen in these fields as well. Annual migrations of a wide variety of wood warblers travel through the town's forested areas each spring and fall. Bald eagles have been sighted along Chelmsford's stretch of the Merrimack River.



A flicker seen at the Warren Wildlife Refuge (Source: Chelmsford Land Conservation Trust)

The increasing suburbanization of Chelmsford has fragmented natural areas that serve as wildlife habitat. Increasing amounts of “edge habitat” have been created where developed lands meet the

boundaries of woodlands and grassy pastures. Edge conditions provide habitat to a wide range of species as well.

In recent years there has been an increase in sighting of bear, bobcats and coyotes. The Town has begun to increase awareness and education of potential for interactions.

Aquatic habitat supports a diverse fish population that includes bass, pike, perch, sunfish, and trout. Due to state and federal restoration efforts, substantial salmon and shad populations are returning to the Merrimack River. Similar efforts are underway to restore alewife to the Concord River. Numerous species of small fresh water fish, vertebrates, and invertebrates are also present in Town. The *Merrimack River Comprehensive Watershed Assessment Report*, prepared by the Massachusetts Executive Office of Environmental Affairs in 2001, identified a multitude of fish species within the Merrimack River Watershed, which are listed in Table 6.5 below.

Table 6.5: Fish Species in the Merrimack River Watershed

Common Name	Scientific Name	Common Name	Scientific Name
3-spine stickleback	<i>Gasterosteus aculeatus</i>	Falifish	<i>Semotilus corporalis</i>
4-spine stickleback	<i>Apeltes quardracus</i>	Gizzard shad	<i>Dorosoma cepedianum</i>
9-spine stickleback	<i>Pungitius pungitius</i>	Golden shiner	<i>Notemigonus crysoleucas</i>
Alewife	<i>Alosa pseudoharengus</i>	Goldfish	<i>Carassius auratus</i>
American shad	<i>Alosa sapidissima</i>	Largemouth bass	<i>Micropterus salmoides</i>
American smelt	<i>Osmerus mordax</i>	Longnose dace	<i>Rhinichthys cataractae</i>
Atlantic salmon	<i>Salmo salar</i>	Margined madtom	<i>Noturus insignis</i>
Atlantic silverside	<i>Menidia menidia</i>	Mummichog	<i>Fundulus heteroclitus</i>
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Northern pike	<i>Esox lucius</i>
Banded killfish	<i>Fundulus diaphanus</i>	Northern pipefish	<i>Syngnathus fuscus</i>
Banded sunfish	<i>Enneacanthus obesus</i>	Pumpkinseed	<i>Lepomis gibbosus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>	Red breast sunfish	<i>Lepomis macrochirus</i>
Blacknose dace	<i>Rhinichthys atratulus</i>	Sand lance	<i>Ammodytes hexapterus</i>
Smallmouth bass	<i>Micropterus dolomieu</i>	Shortnose sturgeon	<i>Acipenser brevirostrum</i>
Blueback herring	<i>Alosa astivalis</i>	Spottail shiner	<i>Notropis hudsonius</i>
Bluegill	<i>Lepomis macrochirus</i>	Striped bass	<i>Morone saxatilis</i>
Bowfin	<i>Amia calva</i>	Swamp darter	<i>Etheostoma fusiforme</i>
Bridle shiner	<i>Notropis bifrenatus</i>	Tessellated darter	<i>Etheostoma olmstedii</i>
Brown bullhead	<i>Ictalurus nebulosus</i>	White catfish	<i>Ictalurus catus</i>
Carp	<i>Cyprinus carpio</i>	White perch	<i>Morone americana</i>
Chain pickerel	<i>Esox niger</i>	White sucker	<i>Catostomus commersoni</i>
Channel catfish	<i>Ictalurus punctatus</i>	Yellow bullhead	<i>Ictalurus natalis</i>
Common shiner	<i>Luxilis cornutus</i>	Yellow perch	<i>Perca flavescens</i>
Eel	<i>Anguilla rostrata</i>	Sea lamprey	<i>Petromyzon marinus</i>

Source: *Merrimack River Comprehensive Watershed Assessment Report*, Massachusetts Executive Office of Environmental Affairs, 2001.

Wildlife typical of suburban and semi-rural areas can be found in Chelmsford, such as deer, coyotes, small rodents, foxes, rabbits, opossums, raccoons, fishers, chipmunks, and squirrels. Reptiles and amphibians, such as frogs, salamanders, snakes, and turtles, as well as water-dependent mammals including beavers and muskrats are common. A list of wildlife species found in Chelmsford is provided in Appendix E.



White tail deer at the Kroll-Calder-Larter Pasture (Source: Chelmsford Land Conservation Trust)

As of January 2017, fourteen (14) vernal pools in Chelmsford had been certified by the Massachusetts NHESP. These pools, shown on Map 6.5, are critical habitat for amphibians and invertebrate animals that use them to breed. They typically hold water in the winter and spring due to rising groundwater and rainfall, remain wet through the spring and into the summer, and dry out completely by mid- to late summer.

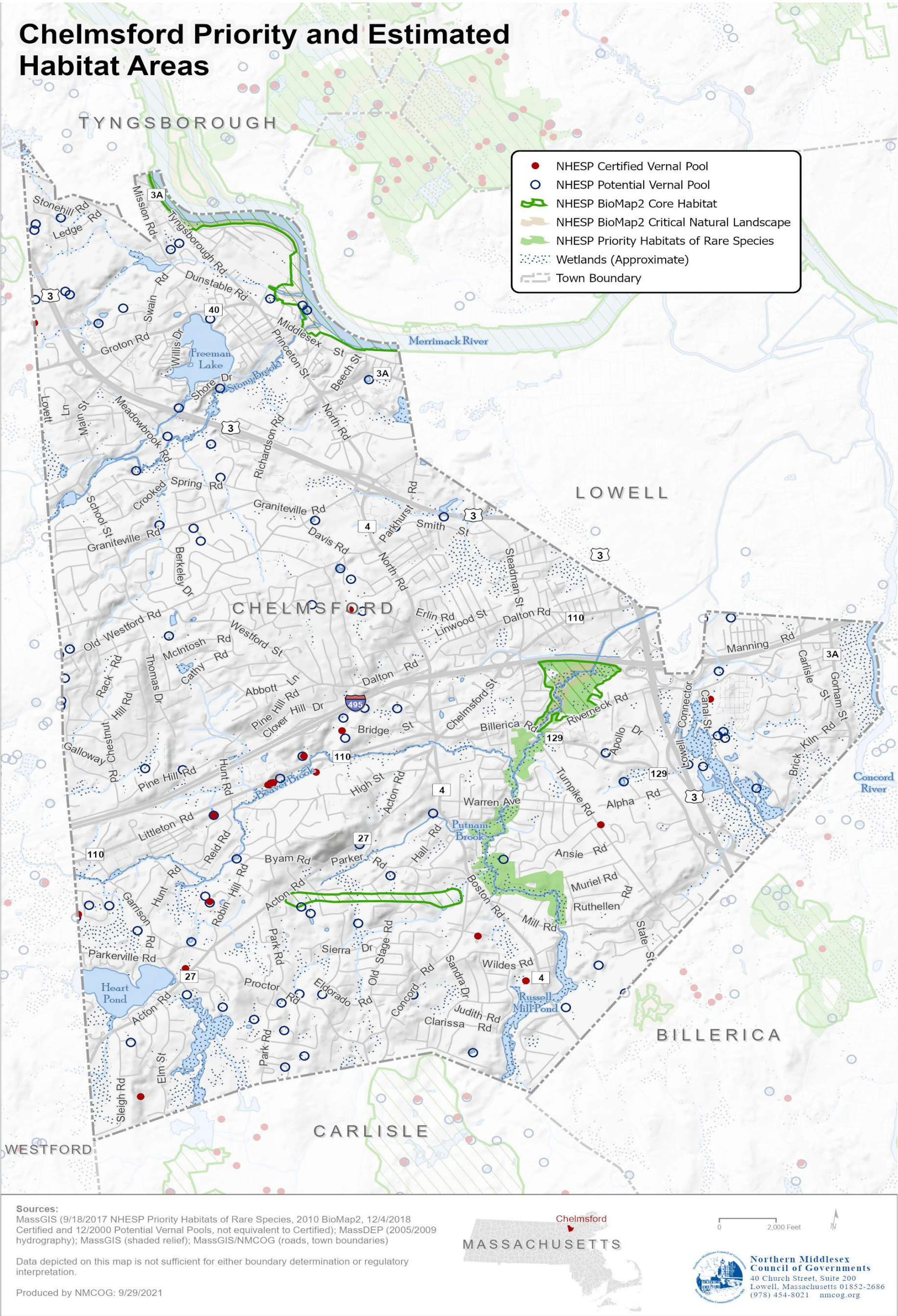
The NHESP reports that Chelmsford is home to nine species listed as threatened or of special concern. This list, shown in Table 6.6 below, consists of one amphibian, three reptiles, an insect, and an amphibian. In addition to the species listed, the Bald Eagle, which is endangered in Massachusetts, has been observed in Chelmsford along the Merrimack River. NHESP Program priority and estimated habitat areas are shown on Map 6.5.

Table 6.6: Species Classified as Threatened (T) or of Special Concern (Sc)

Common Name	Scientific Name	Type	Status	Date Last Observed
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Amphibian	Special Concern	2013
Frosted Elf	<i>Callophrys irus</i>	Butterfly/moth	Special Concern	2019
Eastern Box Turtle	<i>Terrapene carolina</i>	Reptile	Special Concern	2011
Wood Turtle	<i>Glyptemys insculpta</i>	Reptile	Special Concern	2007
Blanding's Turtle	<i>Emydoidea blandingii</i>	Reptile	Threatened	2019

Source: Massachusetts Natural Heritage and Endangered Species Program, 2021

MAP 6.6: PRIORITY AND ESTIMATED HABITAT AREAS



Although open space is fragmented throughout Chelmsford, there are areas where wildlife corridors connect habitat and open space. These wildlife corridors consist of long and narrow stretches of wildlife habitat that run between larger habitat areas, and tend to follow most of the perennial streams, as well as large, open water bodies such as Freeman Lake and Russell Mill Pond. Identified wildlife corridors in Chelmsford include the following²⁸:

- Along Beaver Brook, west of Chelmsford Center, including the Limestone Quarry Reservation, Bartlett Woodlot and the Bruce Freeman Bike Path right-of-way;
- The greenway which includes the Wright Reservation and the Robbins Hill Reservation in South Chelmsford;
- Robbins Hill Reservation separated by Route 27, adjacent to the Wright Reservation
- National Grid high tension lines that run east-west across town;
- Land extending along the banks of the Merrimack River in North Chelmsford, including Southwell Park and the land along Deep Brook;
- Hales Brook/Middlesex Canal area of East Chelmsford, which extends into the Manning State Forest in Billerica;
- The corridor extending through Thanksgiving Forest, Russell Millpond Forest, and the Great Brook State Park into Carlisle;
- The cranberry bog properties in Chelmsford and Carlisle;
- Tenneco gas pipeline easement running east-west along the Chelmsford/Carlisle and Chelmsford/Billerica borders;
- The area along the Concord River in East Chelmsford, and
- Stony Brook and Crooked Springs Brook in North Chelmsford.

ENVIRONMENTAL ISSUES

Contaminated Sites

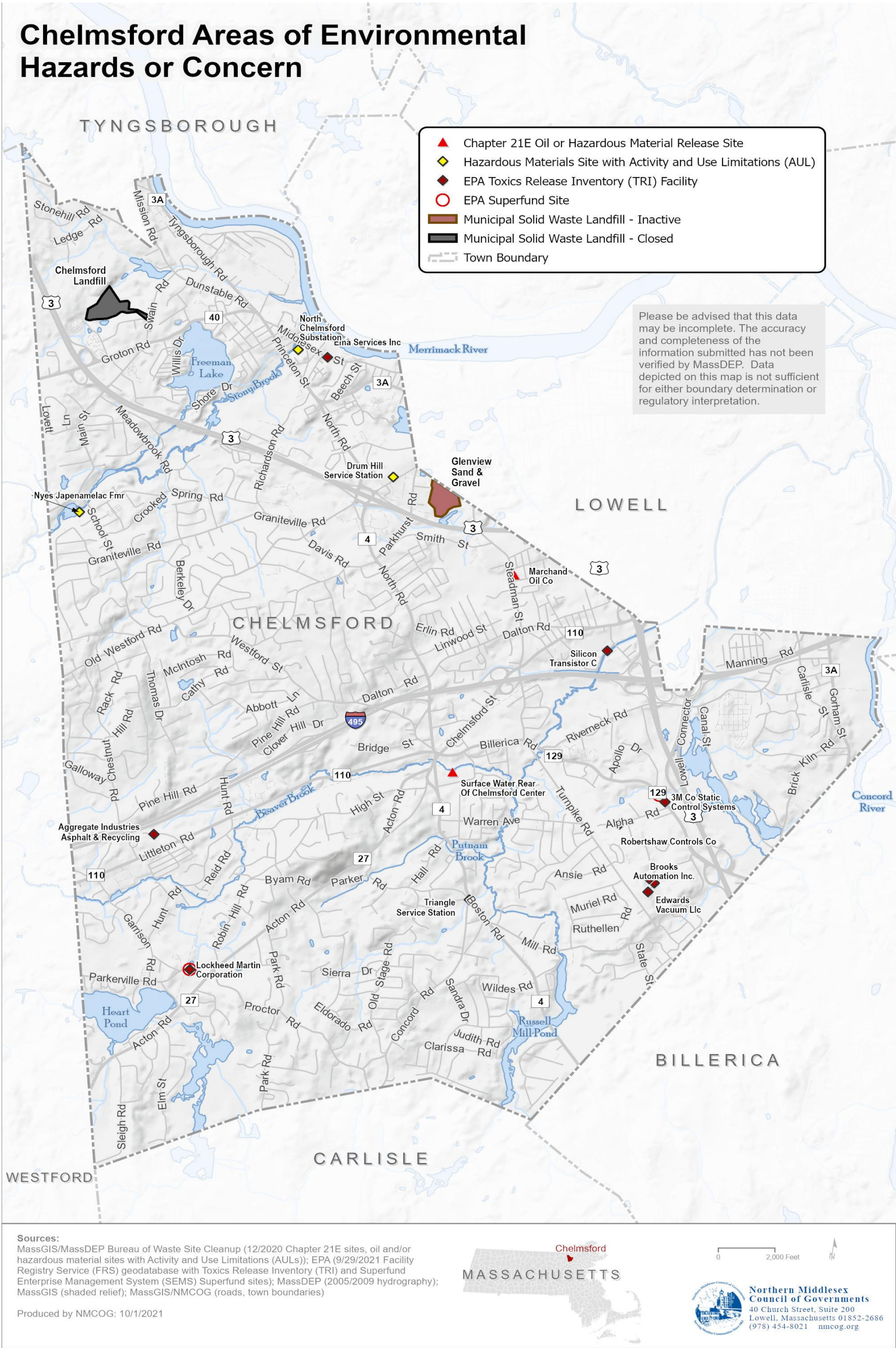
The Department of Environmental Protection (DEP) Bureau of Waste Site Cleanup maintains records of all spills, leaks and other releases of oil or hazardous materials.²⁹ According to DEP's database, Chelmsford has several identified hazardous waste sites, solid waste sites, and potential environmental threats, as shown on Map 6.6. These sites are in various stages of cleanup or remediation.

As of 2017, there were 254 Chelmsford sites listed in the Bureau of Waste Cleanup, Department of Environmental Protection (DEP) "Reportable Release Lookup". Most of these sites are listed due to the presence of hazardous material or petroleum. Included are three Tier 1 and six Tier 2 sites, all of which are petroleum or hazardous material release sites. The other cleanup sites listed are predominantly oil release sites and have received a lower classification, signifying a lower level of hazard. Of the 254 listed sites, 159 submitted a Remedial Action

²⁸ 2003 Chelmsford Open Space and Recreation Plan

²⁹ Massachusetts Department of Environmental Protection, www.state.ma.us/dep/cleanup, select "my community".

MAP 6.7 AREAS OF ENVIRONMENTAL HAZARDS OR CONCERN



Outcome (RAO) to DEP indicating that response actions were sufficient to achieve a level of “no significant risk” to the environment.

In November 2008, the Town established a Priority Development Site (PDS) under Chapter 43D. The 3.1-acre PDS site is located at 25 Katrina Road which was formerly occupied by Silicon Transistor. The site has a history of contamination issues. In 1987, chlorinated volatile organic compounds (VOCs) were detected in soil and groundwater. In November 1988, DEP issued a “Notice of Responsibility” to Silicon Transistor for the release of hazardous materials. A groundwater plume containing trichloroethylene (TCE) and trichloroethane (TCA) was found to be migrating beyond the property line and eventually into the Riverneck Road municipal water supply well field. In 1992, a groundwater recovery system was installed on the 25 Katrina Road property to capture and control contamination. The system was operated consistently until 2002. Since that time, the system has been off line frequently due to the financial problems of the previous owner.

A Phase II Comprehensive Site Assessment Report and a Phase III Remedial Action Report were previously submitted to DEP. The Recommended Remedial Alternative for the site was never implemented. In October 2002, VOCs were detected in the indoor air of the building located on the site. An Immediate Response Action Plan was submitted to DEP by the property owner but the plan was never implemented. To date, this condition has not been adequately remediated. Levels of VOCs above the upper concentration limits still remain in the soils under the building, and the Riverneck Road Well #1 continues to be impacted by the levels of TCE within the groundwater plume.

The company closed due to financial difficulties, and the town acquired the property through a tax title taking in 2006. In January 2007, DEP encouraged the Town to complete preliminary and comprehensive response actions. During the first half of 2007, the Town evicted several businesses that remained on the property, and met with DEP to discuss the Town’s proposal to dispose of the property through an RFP process. In April 2008, the town hired an LSP to prepare a Phase I Environmental Site Assessment Report and a Regulatory Status Review Report, in order to provide current information on the status of the contamination.

The Town is continuing to collect additional information on the contamination. Federal Stimulus funds (\$146,473) have been awarded to perform a targeted assessment of the site, which will include a preliminary determination of the types and extent of contamination, a determination of the risks posed, and develop alternatives for cleanup.³⁰ In March 2009, the site was chosen by MassDevelopment as a Brownfield Priority Project site. This designation makes the site eligible for up to \$2 million in low cost loans for remediation. The Town has also received an additional \$100,000 from MassDevelopment to prepare a financial analysis and conceptual redevelopment plan. The Town recently submitted an EPA Brownfields Cleanup Grant application in the amount of \$200,000 to remediate the contamination associated with the site. In 2018 the Town

³⁰<http://www.recovery.gov/transparency/pages/ProjectSummary508.aspx?AwardId=22246&AwardType=CONTRACT>

successfully sold this parcel for private development as a bus maintenance / storage facility. The site is in process of being remediated via a \$2 million state clean up grant.

Landfills

The Town of Chelmsford formerly operated a landfill in North Chelmsford known as the Swain Road Dump. The landfill is no longer active and has been capped in accordance with DEP standards. Due to its distance from the Water District land, the former landfill has had little effect on the quality of public water supplies, and there have been no reports of soil contamination. Presently, the town contracts with a private hauler to dispose of residential solid waste, diminishing the threat of contamination. The town also has a successful curbside recycling program, further reducing the volume of solid waste generated. In FY 2008, Chelmsford had a recycling rate of 22.55%.³¹ The Swain Road landfill has been leased to host a solar farm.

In 1997, the Town of Chelmsford signed a host agreement with Mass Gravel Inc. (MGI) to allow excavate from the Central Artery project to be used in an interim and final grading plan at the former Glenview Sand and Gravel site. The agreement stated that the material used would comply with DEP policies for soil reuse at unlined landfills. Sampling of the soil was to be conducted to ensure that contamination levels did not exceed DEP standards. MGI agreed to operate the site and to perform post-closure of the site, including the permanent installation of storm water controls, in accordance with DEP requirements. MGI operated the site for a period of time, but encountered financial difficulties. Closure and post-closure of the landfill has not occurred as required by DEP.

In 2014 the Glenview landfill received state permits to be re-capped and closed in accordance with proper standards. This work has been completed.

Non-point Source Pollution

Non-point source pollution, from widespread sources which impact the environment through stormwater runoff entering surface water bodies and groundwater, continues to be an issue in most communities, including Chelmsford. Such sources of pollution include the following:

- Fertilizer, herbicides, and insecticides from lawns and farmland;
- Oil, grease and toxic chemicals from transportation sources, roadways, fueling stations, and parking lot runoff;
- Sediment from improperly managed construction sites or eroding stream banks; and
- Pathogens and nutrients from livestock, pet waste, and failing septic systems.

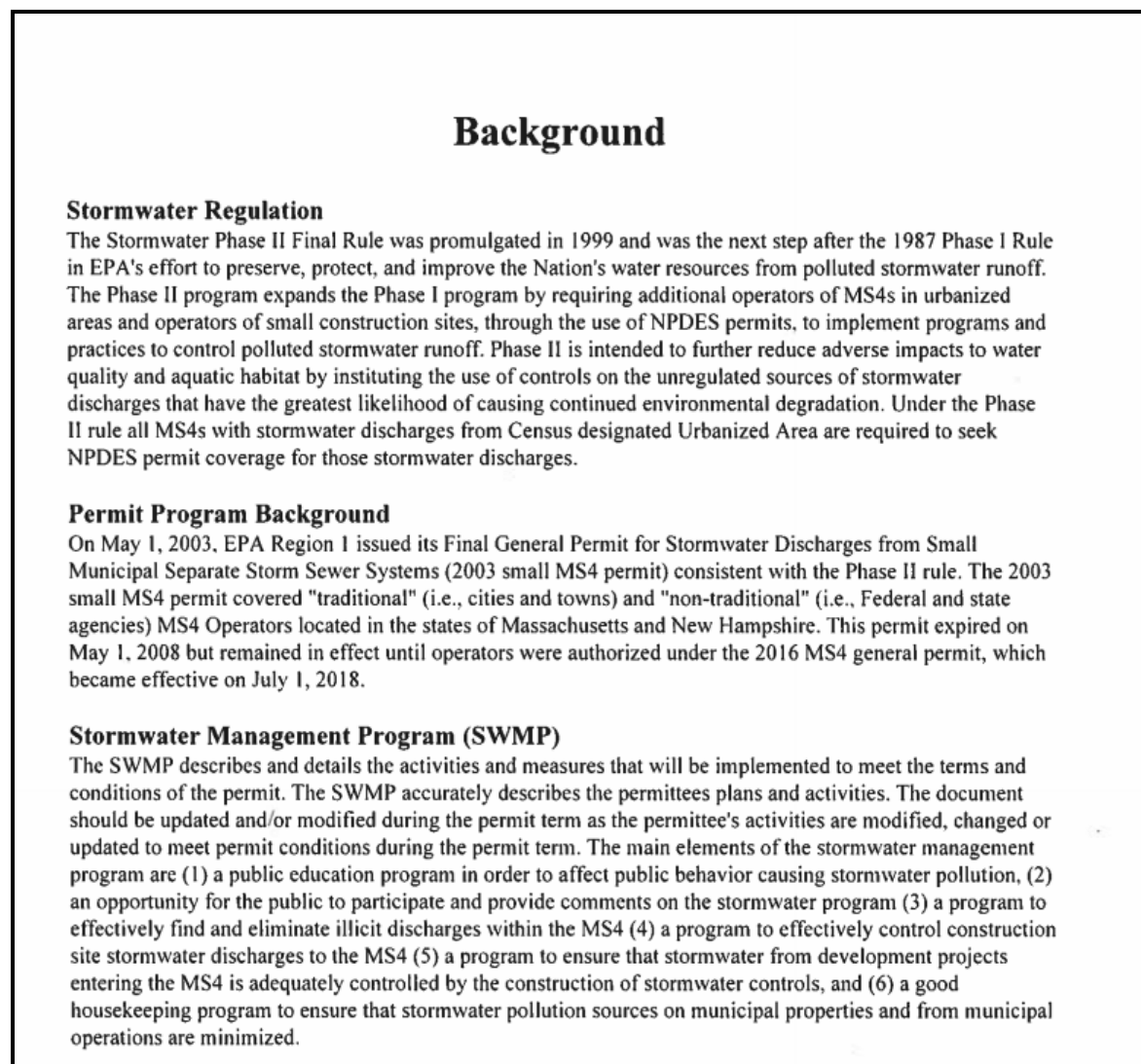
These sources of pollution are more difficult to control than point source pollution, and are best addressed through proper land management and agricultural practices, effective maintenance of

³¹ Town of Chelmsford FY 2008 Annual Report, p.57.

motor vehicles, zoning and erosion control bylaws, and homeowner education. The Town is also working to address these issues through its Phase II Stormwater Management Plan.

In 2018, Town Meeting adopted the establishment of a Stormwater Utility for purposes of complying with the federal Phase II MS4 stormwater permit described in Figure 6.1 below.

Figure 6.1: Overview of Phase II MS4 Stormwater Permit



Since then, Town Meeting adopted a Stormwater Utility in which all properties are assessed a surcharge based upon a sliding scale of impervious cover per lot. The Stormwater Division has hired a staff and purchased equipment, hired a consultant and appointed a Stormwater Master Plan Advisory Committee to develop a Stormwater Master Plan for long-range planning. The Town will provide regular drainage maintenance to instill a proactive approach, rather than a reactive approach. Long range planning of drainage projects will be more cost-effective by prioritizing.

PUBLIC INPUT

Below is a summary of the input received from the master Plan survey related to natural resources.

7f. Natural and Cultural Resources: Please indicate whether you would rate the following services, facilities, and characteristics, as they relate to Chelmsford, as excellent, good, fair or poor.										
	Excellent		Good		Fair		Poor		Unable to Score/ Unfamiliar	
Protection of wetland and water resources	9.8%	98	42.7%	429	17.3%	174	7.2%	72	23.0%	231
Ground water and aquifers	6.3%	63	32.4%	326	15.6%	157	5.2%	52	40.5%	407
Protection of wildlife habitat	7.7%	77	33.9%	340	18.7%	187	10.8%	108	28.9%	290
Forestry	6.5%	65	28.4%	285	19.2%	193	9.8%	98	36.1%	362

ISSUES AND OPPORTUNITIES

In 2017, an updated Open Space and Recreation Plan was adopted by the Conservation Commission. Based upon the 2017 Open Space and Recreation Plan the following issues are of concern for the next decade:

- Chronic Flooding for specific geographic locations / areas – In recent years the Town has undertaken enhanced efforts related to drainage maintenance. This issue will continue to be addressed via Phase II stormwater.
- Ground and Surface water pollution
- Impaired Water bodies – as noted in this section most of the rivers, stream and water bodies suffer from siltation, toxins, pathogens, low dissolved oxygen and organic enrichment. A highly visible example is the ongoing closures of the Varney Park beach at Freeman Lake.
- Loss of tree canopy / high number of hazard trees – due to a variety of factors (tree type, disease, micro climate, age) most of the public street trees and town forest trees are suffering from stress. Chelmsford continues to experience significant tree damage during wind events.
- Invasive (fauna & flora) species management – while this has been an identified concern for over a decade and the Town has made some incremental project based progress, this issue is anticipated to continue to be a major challenge. A highly visible example is the recent introduction of invasive tree insects such as the Asian Long-horned Beetle and Emerald Ash Borer.
- Wildlife Management - Increased human inter-actions and potential conflicts, increase in deer populations.
- Effects from new development

- Based upon the 2019 MVP the following issues are of concern:
 - Severe Storms
 - Flooding
 - Extreme Temperature
 - Wind
 - Pollution
- Based upon the Hazard Mitigation Plan the following issues are of concern:
 - Flooding
 - Wind
 - Severe Thunderstorms
 - Winter Storms (Ice)
 - Fire (Drought, wildfires, brush fires)
 - Extreme temperatures
 - Climate Change
- Water
 - Water Conservation
 - Water management - limits water withdrawals from basins
 - Water Resource Monitoring - tracking precipitation
 - Continued pressure on water resources due to limits on withdrawals, increased usage, outdoor irrigation and climate change

Natural resources are closely linked with the Town's identity and sense of place, and preserving these resources is critical to the quality of life for the town's residents. Although fiscal conditions present one of the greatest challenges to future conservation efforts, the Master Plan Committee recommends that Community Preservation funds continue to be used to purchase land or deed restrictions for properties containing natural resources such as aquifers, water resources and wildlife habitat. Significant acreage has been acquired by the Town using CPC funds over the last decade.

While the Master Plan Committee finds that the Town's zoning bylaw and other development regulations are effective in protecting natural and cultural resources, the Town could still do more to encourage or require development practices that will further preserve and protect these resources. For example, the town's subdivision regulations presently prohibit the use of many low impact development (LID) measures for managing storm water. The Land Use and Zoning section of the Master Plan provides more detailed information on LID techniques and recommends that the Town modify its subdivision regulations to allow and encourage the use of Low Impact Development techniques, as a means of improving water quality while reducing maintenance costs. It should be noted that while the subdivision regulations do not specifically mention LID there are no restrictions to its use. This will likely be addressed as part of the Town continued compliance and implementation of the Phase II stormwater regulations.

Eleven streams within the Town of Chelmsford suffer from some form of impairment. The Master Plan Committee recommends that the town implement a program to minimize the application of road deicing chemicals and lawn fertilizers to the extent feasible. This will likely be addressed as part of the Town continued compliance and implementation of Phase II stormwater permit and regulations.

In addition, the Town should require the preparation of an Integrated Pest Management Program for sizable projects that come before the Planning Board and/or Conservation Commission. The Conservation Commission should work with DEP, surrounding communities, environmental organizations and neighborhood residents to develop a program to improve environmental conditions and water quality these waterway.

The Town should develop education and awareness programs to encourage the protection of natural resources. Such programs should include the Conservation Commission, the Water Districts, the Town Engineer, and the School Department, as well as private non-profit and volunteer organizations such as the Open Space Stewards and the Chelmsford Land Trust. The town should also tap into existing state and federal public education programs and materials provided by the Environmental Protection Agency (EPA), the Massachusetts Department of Public Health (DPH), and the Massachusetts Department of Environmental Protection (DEP). This will likely be addressed as part of the Town's continued compliance and implementation of the Phase II stormwater permit.

In 2004, the Chelmsford Board of Selectmen adopted a policy requiring one-to one replacement for tree removal occurring on town-owned land. In addition, the Chelmsford Open Space Stewards have worked with Jones Farm to open a town nursery at Sunny Meadow Farm to cultivate trees for this purpose. The town needs to build upon these efforts by developing a forestry management plan for the community's remaining forested lands. Such a plan typically covers a ten-year period and outlines goals and objectives, provides a detailed property description and resources inventory, and contains a list of management recommendations with an implementation schedule. The stewardship section of the plan addresses other issues such as wildlife and recreation. The Department of Conservation and Recreation (DCR) administers a competitive grant program to fund the development of such plans. In addition to this proactive program, the town should establish a policy to address tree protection, tree maintenance, and tree replacement for new development and redevelopment proposals undergoing site plan review.

The Town appointed a dedicated Tree Committee in 2012. The Town was also a designated as a Tree City since 2013, and as such maintains a dedicated budget line item for maintenance and improvements to public trees.

The Town should develop and implement an invasive species management plan. Invasive and exotic species such as multiflora rose, oriental bittersweet, and purple loosestrife, are commonly found in many areas of town. The implementation of this management plan will involve the

participation of the Conservation Commission, Highway Department and volunteers from non-profit organizations. While warranted, this issue remains very challenging to address on a town-wide level. Individual development projects have been required to remove / manage invasives, and the Town has addressed this issue on a project-by-project basis.

The citizens of Chelmsford recognize the importance of preserving the remnants of the Town's agricultural heritage, as evidenced by the formation of the Agricultural Commission in 2009. The majority of remaining farmlands in town are not permanently protected and the Town needs to work to preserve these enterprises through a variety of mechanisms. The Town should actively encourage property owners to consider measures to conserve their land in perpetuity. When land is proposed for development, the Town should work with property owner to explore other options, such as the Agricultural Preservation Restriction program, or the Town may want to consider purchasing the development rights or purchasing the property in fee, using Community Preservation Act (CPA) funds, as has been done in the past. The Town has been very successful in acquiring Chapter 61 agricultural properties using CPC funds over the last decade.

The Town received its Municipal Vulnerability Preparedness designation in 2019 through a Municipal Vulnerability Preparedness (MVP) Planning Grant from the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). Under the MVP process the town was required to evaluate hazards facing the Town, discuss municipal strengths and vulnerabilities, identify opportunities to improve the Town's overall resiliency to climate change, and to develop a Town-specific list of priorities to respond to climate-related hazards. This process was further expanded into an update of Chelmsford's Hazard Mitigation Plan (HMP). The Updated HMP Plan built upon the 2015 Hazard Mitigation Plan for the Northern Middlesex Region prepared by the Northern Middlesex Council of Governments (NMCOG) and further assessed vulnerability and hazards unique to Chelmsford.

The 2020 Hazard Mitigation Plan Update contains goals and objectives for developing the Plan, provides an assessment and inventory of natural hazard risks, as well as a vulnerability analysis based on the geographic location of critical infrastructure and facilities, delineates an existing protection matrix for the town and action / implementation plan. The update will maintain the Town's eligibility for certain types of federal funds to implement mitigation initiatives under the Pre-Disaster Mitigation (PDM), Flood Mitigation Assistance (FMA), and Hazard Mitigation Grant (HMGP) programs. A hazard mitigation grant was secured from FEMA that addresses serious erosion concerns along the Merrimack River where it flows alongside the Williamsburg Condominium complex.

RECOMMENDATIONS

6.1 Continue to implement the recommendations and action items contained in the 2017 Open Space and Recreation Plan.

6.2 Continue to implement the recommendations and action items contained in the 2019 MVP plan:

- Create landscaping and maintain trees along roadways
- Continue the Hardy Tree Program
- Establish dedicated funding for invasive species removal and public education

6.3 Continue to implement the recommendations and action items contained in the regional and the 2020 Town Hazard Mitigation Plans:

- Create landscaping and maintain trees along roadways
- Continue existing Hardy Tree Program
- Establish dedicated funding for invasive species removal and public education
- Implement roadside low-impact development in an effort to mitigate flash flooding
- Conduct stream and waterway maintenance
- Incorporate hazard mitigation into design criteria of local regulations

6.4 Continue to implement the recommendations and action items contained in the 2020 Stormwater Management Master Plan:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination (IDDE) Program
- Construction Site Stormwater Runoff Control
- Post Construction Stormwater Management in New Development and Redevelopment
- Good Housekeeping and Pollution Prevention for Permittee Owned Operations
- Fully map the stormwater system with catchments
- Perform outfall screening/testing
- Retrofit sites with stormwater improvements
- Increase street sweeping to twice a year
- Clean all catch basins once they are over 50% full
- Report on all retrofits by tracking the Phosphorous removal every year
- Increased site inspection
- Inspection/inventory of private stormwater systems
- Site Plan Review to include Phosphorous removal requirements
- Stricter stormwater bylaws at the local level

6.5 The Town's subdivision regulations should be modified to allow and encourage the use of Low Impact Development (LID) techniques for managing storm water.

6.6 The use of deicing chemicals and lawn fertilizers should be minimized, and the town should require an Integrated Pest Management (IPM) Program for sizable development proposals. In addition, an IPM program should be utilized for addressing turf maintenance issues at the golf course and at the town's playing fields by the appropriate board or department. Per Phase II stormwater compliance sand is no longer used for town winter operations. Only salt is used.

6.7 A public education and awareness program that encourages the protection of natural resources should be established for town residents and the schools

6.8 A forestry management program should be developed for the community's remaining forested lands. In addition, the town should establish policies for tree protection, tree maintenance, and tree replacement for new development and redevelopment proposals undergoing site plan review. The public should be made aware of the Board of Selectmen's tree protection and replacement policy. While this remains a recommended goal of the Conservation Commission's 2017 Open Space Plan no action has been taken to date related to forestry management plans. Over the last decade the Town has been designated a "Tree City", appointed a dedicated tree committee and has a budget line item for public shade trees.

6.9 The Town should develop and implement an invasive species management plan. While this remains a significant issue the development of a town wide plan is also a significant challenge. To date the Town has viewed this on a case by base project basis.

6.10 The Town should work with property owners to preserve the town's remaining agricultural lands. The Town should also consider purchasing development rights for these agricultural properties or purchasing the properties in fee, where feasible and appropriate. Over the last decade, the Town been very successful in preserving agricultural lands using CPC funds.

6.11 Work with DEP, the surrounding communities, environmental organizations and neighborhood residents to develop a program to improve environmental conditions and water quality its waterways

6.12 Explore continued chemical treatments for invasive plants at Hart's Pond and Freeman Lake

VII. CULTURAL AND HISTORIC RESOURCES

INTRODUCTION

Cultural resources are the places and institutions that contribute to a town's unique identity and sense of place. In Chelmsford, these consist of resources associated with the town's history, industry, agriculture and arts. The North Chelmsford industrial village, mill buildings, worker housing and canals document the town's manufacturing history. Barns, stone walls, and scenic pasture provide a hint of what was once a thriving agriculture community. Operating quarries and the remnants of early quarry operations are testimony to the role that granite and limestone played in defining Chelmsford's identity. The public input sessions conducted for this Master Plan reinforced the fact that the town's residents and policy makers value highly the town's historic assets.

The Town is very fortunate to have a number of historic preservation and cultural organizations that contribute to the quality of life of its residents. During the Visioning Sessions for the Master Plan, many residents outlined a community vision that included a very engaged and thriving arts community.

Historic Resources

The Chelmsford Historical Commission defines a historically significant property as one that is:

- Listed on the National Register of Historic Places;
- Within an area listed on the National Register of Historic Places;
- Listed with the Massachusetts Historical Commission (MHC);
- Associated with one or more historic persons or events;
- Associated with the broad architectural, political, economic or social history of the Town or Commonwealth; or

Goal Statement Goal Statement: Maintain, protect and preserve the natural, cultural and historical resources that provide the town its unique identity and enhance the quality of life of its residents.

- *Minimize the impact of future development and redevelopment projects to preserve historic resources..*
- *Identify, prioritize, protect, and maintain outstanding historic and cultural landscapes, buildings, structures and features.*
- *Preserve and protect archaeological resources.*
- *Foster public appreciation and civic pride in the town's historic and cultural resources.*
- *Promote Chelmsford's cultural assets and resources.*

- Historically or architecturally significant (in terms of period, style, method of building construction or association with a famous architect or builder) either by itself or in context with a group of buildings.

The Town clearly values its historic past. During the Vision Session for the Master Plan, participants identified the town's respect for history and historic charm as being among its ten top strengths. Furthermore, during a later public session, it was suggested that active promotion of the town's historic resources would encourage tourism and benefit the local economy. It was also recommended that the town establish an information booth at the Old Town Hall or in the Toll House on the Town Common to promote the town's cultural and historic resources.

An Abbreviated History of Chelmsford

The Wamesit tribe originally occupied the land now known as Chelmsford. In 1652, a group of former residents of Concord and Woburn settled in the area. The Town was granted its general charter in May 1655, and named Chelmsford after the town in Essex, England, from which many of the original settlers emigrated. These early settlers were primarily farmers, but millers and other tradesmen soon settled in the community as well. At least two mills were constructed in the 17th century: Samuel Adam's saw/grist mill on Russell Mill Pond and Thomas Hinchman's saw mill located on Stony Brook.

When the settlers arrived, they found a community that was nearly entirely forested, except for areas along the waterways, and areas that were burned by Native Americans. Most of the settlers set up homesteads near what is now the Town Center, as the Massachusetts General Court had mandated in 1635 that dwellings could not be located more than one-half mile from the meeting house. Eventually, the settlers dispersed throughout town. Native trails were used as roadways, with the formation of the town center occurring during the mid-17th century. Improvements were then made to these radial routes along what are now Billerica Road, Steadman Street, North Road, Westford Road, Pine Hill Road, High Street, and Boston Road. Sixty-seven people were listed on the 1672 tax list.³²

During the 18th century, the Town Center remained the focus of the town's growth, extending to the north along North Road, east along Billerica Road, and west along Westford Road.

Agriculture and lumbering remained the primary occupations for most residents. The town's first school was constructed in 1713, but little population growth occurred during the 18th century due to the Revolutionary War. The population of the town was 1,341 persons in 1776, according to the U.S. Census.

The railroad came to town in 1838. The growth of the community was relatively slow until the advent of the Industrial Revolution. The Merrimack River provided water power for the mills, and entrepreneurs began to take advantage of the natural granite and limestone deposits, setting

³² Massachusetts Historical Commission, Reconnaissance Survey Town Report for Chelmsford, MA, 1980.

up quarrying operations to support the area's industrial growth. During this period, much of the town's growth occurred in North Chelmsford and was fueled by the mills. By 1880, fifty-percent of the town's population was employed in manufacturing.

As the industrial growth accelerated in the early 1900s, so did the town's population. Lowell's streetcar routes were extended to Chelmsford Center along Chelmsford Street and to North Chelmsford along Middlesex Street. New settlement occurred mainly on side streets in North Chelmsford, and in the eastern section of town. By the 1920s, the trolley routes were abandoned and improvements were made to the town's roadway network to better accommodate the automobile. Due to the Depression, there was no significant industrial development during this time period. New settlement was primarily suburban and concentrated in the eastern portion of town, near Lowell.



Old trolley line in North Chelmsford (Source: *The Royal Shawcross Collection*)

As discussed in the Land Use section of this document, the development of the regional highway system, specifically U.S. Route 3 and I-495, was the catalyst for a period of rapid growth and development, particularly during the 1960s and 1970s. The development of housing made available to veterans returning from World War II, the Korean Conflict and the Vietnam War was also a factor in the expansion of suburban communities. This growth transformed the town into a vibrant suburban community with significant residential, commercial and industrial development. Today, the community is nearly built out, as discussed in the Land Use section of this document.

Historic Architecture

Chelmsford has an impressive inventory of historic buildings, spanning three centuries, beginning with the settlement of the community in 17th century, through its industrial development during the 19th century, to its most recent suburbanization in the 20th century.

These historic structures include residences, industrial buildings, religious and institutional structures, barns, and other outbuildings. Most of the town's historic buildings are privately-owned, but there are also some owned by public and non-profit entities. For the most part, the historic buildings owned by the Town are in the Town Center or Vinal Square.

The town's architecture includes many of the styles that were popular in the 18th, 19th and 20th centuries. The prevalent architectural styles include the Federal style and Greek Revival styles popular in the early 18th century, the Second Empire and Italianate styles fashionable in the mid-19th century, the Queen Anne and Shingle styles popular during the 19th century, and the Colonial Revival style of the early 20th century. Many of these buildings are well-preserved and maintained, and contribute to the town's visual character and sense of place.

Many of the town's oldest homes have retained the Federal and Greek Revival characteristics of early farm houses with large barns and outbuildings. Residences designed in the architectural styles of the mid- and late-1800s can be seen in residential neighborhoods throughout town as well as in the multi-family worker housing in North Chelmsford. Worker housing was constructed by mill owners



[The Spalding-Fiske House in Central Square.](#)

within walking distance of the mills, and included single- and multi-family structures. These homes were typically small and clustered together on small lots. Similar homes were often repeated on a single street, which can be seen on many side streets within North Chelmsford.

National Register of Historic Places Designations

The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources. Chelmsford has one National Register District and four individual properties listed on the National Register of Historic Places, as shown in Table 7.1 on the following page.

Table 7.1-National Register Of Historic Place Listings

Historic Name	Type	Address/Location	Year Listed
Old Chelmsford Garrison House complex, includes the Hill Jock House	Building	105 Garrison Road	1973
Fiske House	Building	1 Billerica Road	1977
Chelmsford Center Historic District	District	Intersection of MA Routes, 4, 110 & 27	1980
Oliver Hutchins House	Building	79 Elm Street	1985
Hildreth-Robbins House	Building	19 Maple Road	2006

Massachusetts Cultural Resources Information System

There are more than 260 historically significant structures, places, or buildings listed in the Massachusetts Cultural Resources Information System (MACRIS) for Chelmsford. These historic resources are organized under five categories: buildings, areas, structures, objects and burial grounds. Additional detailed information can be viewed on the Massachusetts Historical Commission website at www.sec.state.ma.us/mhc. A copy of the inventory is also provided in Appendix G of this document. Historic and cultural resources are shown on Map 25.

Historic Buildings

There are currently 203 individual buildings enumerated in the MACRIS listing. While these buildings are found throughout the Town, clusters can be found in certain areas such as Acton Road, Bartlett Road, Billerica Road, Boston Road, Chelmsford Street, High Street and Westford Street, and in North Chelmsford along Gay Street, Princeton Street and Cottage Row. The majority of the buildings are single-family houses (153), but civic/governmental buildings (11), manufacturing and commercial buildings (15), churches and related buildings (8), transportation-related buildings (4), and mixed-use/ multi-family/misc. buildings (9), are also found. Most of the buildings date from the 17th, 18th and 19th centuries, although some from the 20th century are also listed. The Chelmsford Central Congregational Church on Worthen Street and the Chelmsford Central Baptist Church Parsonage on Academy Street, both built in 1955, are the “newest” buildings listed. The oldest building listed is the Edward Spaulding House on Westford Street, built in 1690.

Historic Areas

According to the Massachusetts Historical Commission (MHC), Chelmsford has three areas that are considered by the state to be historically significant. These areas are shown in Table 7.2 below. The Chelmsford Center Historic District, which was originally established in 1975, and then expanded in 1980, is listed twice within the Register, as reflected in the table. Each listing actually encompasses a separate geographic area within the town center.

Table 7.2: Historic Areas

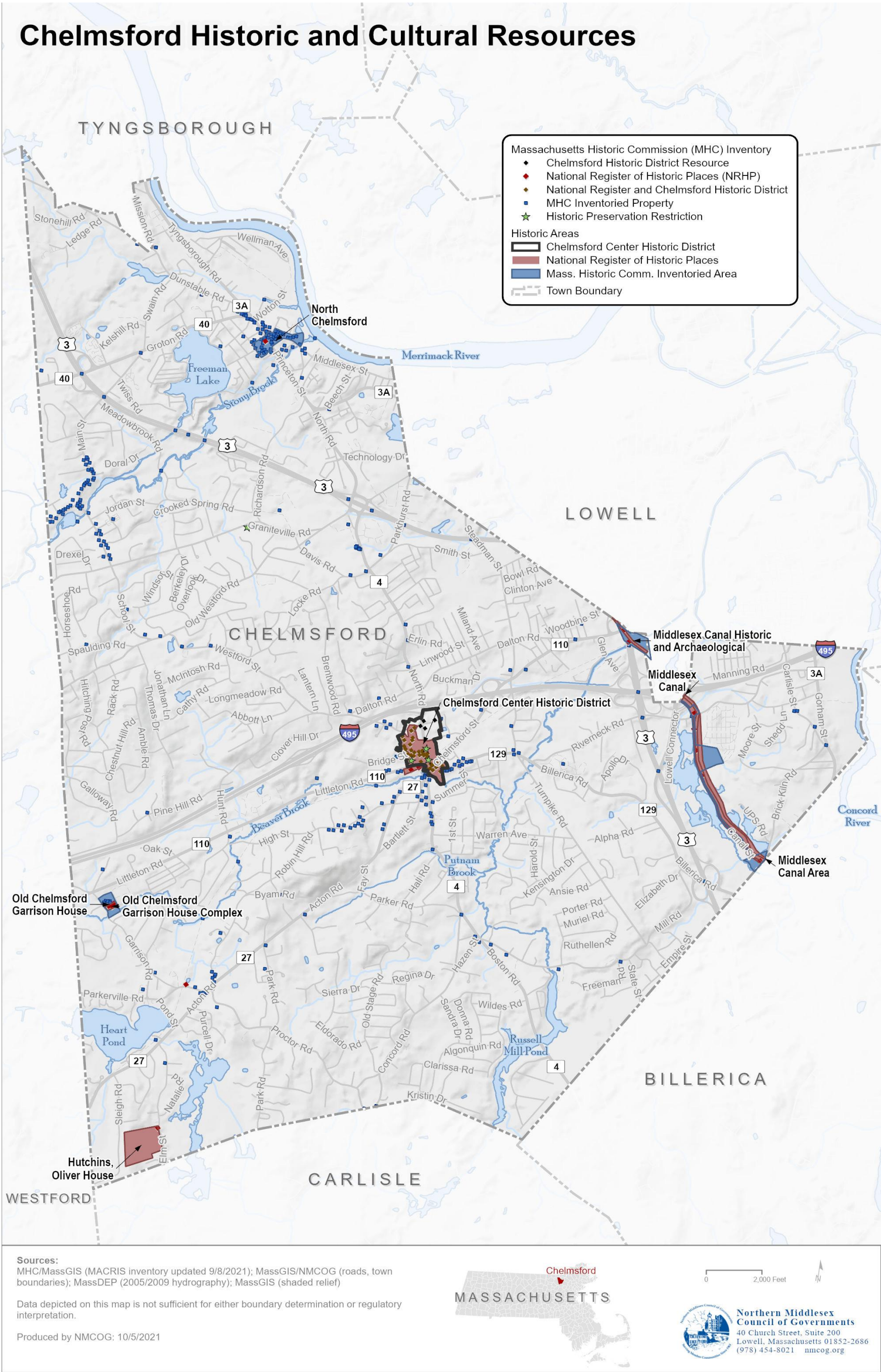
Area	Address/Location	Year Listed
Middlesex Canal	Riverneck Rd. – Brick Kiln Rd.	1972
Chelmsford Center Historic District	Intersection of MA Routes, 4, 110 & 27	1975
Chelmsford Center Historic District	Intersection of MA Routes, 4, 110 & 27	1980

The Middlesex Canal is a man-made waterway that was used in the early 19th century to transport materials from the Greater Lowell area to Boston. It was 27 miles long, thirty feet wide and three feet deep. Built chiefly for freight, the Canal was never profitable. With the advent of the railroad, the canal lost its economic viability and was sold in sections to abutters in 1852. The Middlesex Canal Commission recently submitted an application to have the extant portions of the entire Canal, from Lowell to Boston, included on the National Register of Historic Places.

According to the Historical Commission, the North Chelmsford and Vinal Square area of town contains more mill-related structures than any location in Massachusetts. During the public input sessions conducted for the Master Plan it was suggested that the significance of this area be recognized through the creation of an “honorific” historic district. Some participants felt that creating a formal historic district would impose unreasonable restrictions on the businesses that are located there. With over 250 significant mill-era buildings, the area is eligible for inclusion on the National Register of Historic Places. A Community Center at the Old North Town Hall has been created with plans to include a mini-museum with historical exhibits in the future. Some additional options are an architectural district or neighborhood collaborative in North Chelmsford.

The Historic Landscape Preservation Initiative, administered by the Department of Conservation and Recreation, strives to “. . . identify, document and plan for the preservation of landscapes that are vital to the history, character and quality of life in our communities.” Because heritage landscapes contain both natural and cultural resources, they are subject to a wide variety of threats – but this means that they can also be protected through a multitude of ways. Through this program, DCR’s Office of Cultural Resources assists communities in undertaking a reconnaissance survey to help develop an integrated, proactive planning approach for heritage landscape preservation. Chelmsford has indicated by its past actions that it values its historic resources. The preservation of landscapes initiative provides one additional tool that could assist the Town in continuing these efforts.

MAP 25: HISTORICAL AND CULTURAL RESOURCES



Historic Structures

There are thirty-two (32) structures within Chelmsford listed on the MACRIS. The majority of these are bridges that have been constructed along the railroad right-of-way, Route 3 and I-495.

Table 7.3 below contains a complete listing of these structures, the oldest of which are the Limestone Quarries and Kilns found along Beaver Brook that date back to 1740. Veterans' Memorial Park, constructed in 1990, is the newest listing under this category and was added due to its military significance.

Table 7.3: Historic Structures

Structure Name	Address/Location	Year Built
Chelmsford Limestone Quarries and Kilns	Beaver Brook	1740
Middlesex Canal	Canal Street	1803
North Chelmsford Canal	Princeton Street	1823
Parkhurst's Pulpit	10 Robin Hill Road	1850
Fletcher Granite Co.	Groton Road	1880
NY, NH&H RR Bridge-Framingham Branch #5.66	CSX Railroad ROW	1920
NY, NH&H RR Bridge-Framingham Branch #6.59	CSX Railroad ROW	1920
NY, NH&H RR Bridge-Framingham Branch #4.09	CSX Railroad ROW	1927
NY, NH&H RR Bridge-Framingham Branch #5.20	CSX Railroad ROW	1930
Stedman St. Bridge over Rt. 3	Stedman Street	1940
Rt. 3 Bridge over Parkhurst Rd.	Rt. 3	1941
Rt. 3 Bridge over Conrail	Rt. 3	1941
Rt. 3 Bridge over Rt. 110	Rt. 3	1941
Riverneck Rd. Bridge over Rt. 3	Riverneck Road	1954
Rt. 129 Bridge over Richardson Rd.	Rt. 3	1954
B&M Railroad Bridge-Stony Brook Branch #12.8	Princeton Street.	1955
Westbound Rt. 4 over Rt. 3	Rt. 4	1958
Eastbound Rt. 4 Bridge over Rt. 3	Rt. 4	1958
Rt. 3 Bridge over Stony Brook	Rt. 3	1959
Rt. 3 Bridge over Moore's Canal	Rt. 3	1959
Rt. 3 Bridge over Main St.	Rt. 3	1959
Rt. 3 Bridge over River Meadow Brook	Rt. 3	1959
Rt. 3 Bridge over B&M Railroad	Rt. 3	1959
Lowell Connector Bridge over Rt. 3	Meadowbrook Road	1960
I-495 Bridge over Rt. 3	I-495	1961
I-495 Access Road Bridge	I-495	1961
Rt. 3 Bridge over Rt. 40	Rt. 3	1961
Veterans' Memorial Park	North Road	1990

Historic Objects

There are twenty-eight (28) objects listed in the MACRIS within Chelmsford, as shown on Table 7.4 on the following page. These objects are principally comprised of monuments, markers and memorials. The newest object listed in the inventory is the North Chelmsford Vietnam War Memorial erected in 2006.

The Revolutionary War Memorial is the oldest object listed and is located on Academy Street. The native granite memorial, designed by architect Greely S. Curtis of Boston, was dedicated on May 2, 1859 to the Revolutionary soldiers of Chelmsford. The memorial is twenty-seven feet tall, with a thirty-foot terrace, with a shaft four feet in diameter, and cost \$1,627.38 to build. An ash tree once stood near the memorial, under which the "Chelmsford patriots" met to discuss important town issues as early as 1775. There was a hollow somewhere in this tree into which money was placed for the use of soldiers who were about to enlist in their country's service.

Table 7.4: Historic Objects

Structure Name	Address/Location	Year Built
Chelmsford Revolutionary Monument	Academy St.	1859
Chelmsford Concord Battle Monument	Central Sq.	1899
Chelmsford World War I Monument	Vinal Sq.	1922
Perham Park Armed Services Monument	Chelmsford St.	1925
Chelmsford First Town Meeting Marker	Crosby Ln.	1925
Quessy, Cpl. George Ralph Monument	Main St.	1925
Chelmsford Town Pound Marker	Bridge St.	1926
East Chelmsford World War II Veteran's Monument	Carlisle St.	1943
Clarke School for the Deaf Marker	Academy St.	1952
Chelmsford War Memorial	North Rd.	1955
LeFebre, Lance Corporal Rudolph Jr. Monument	177 Boston Rd.	1967
Lucifer Match Factory Monument	192 Robin Hill Rd.	1975
Middlesex Canal Monument	127 Riverneck Rd.	1987
Harvey Family Monument	2 Harvey Rd.	1989
Blazonis, Peter V. Monument	Gorham St.	1991
Bagni, William L. Memorial Stone and Bridge	North Rd.	1991
Veterans' Memorial Park-Desert Storm Monument	North Rd.	1991
Veterans' Memorial Park-Soldiers' Wall -	North Rd.	1992
Veterans' Memorial Park-POW/MIA Monument	North Rd.	1992
Veterans' Memorial Park - Soldier & Boy Stone	North Rd.	1995
Merrimack Valley Vietnam Veterans Memorial Stone	North Rd.	1997
Veterans' Memorial Park-Contributor's Stone	North Rd.	1997
Veterans' Memorial Park-Kinney Milton Bench	North Rd.	1998
Clark, Allan and Herbert World War II Memorial	Main Rd.	2000
Chelmsford Police Officers' Monument	2 Old North Rd.	2003
September 11 Memorial Bench	200 Richardson Rd.	2003
Operations Enduring - Iraqi Freedom Monument	North Rd.	2005
North Chelmsford Vietnam War Memorial	Middlesex St.	2006

During the public input process, information was provided indicating that the Chelmsford Memorial Veterans' Park is underutilized. Events are held at the park during each of the patriotic holidays. The Park was designed to be a place of contemplation and was located in the area of the schools so that students could learn to appreciate the sacrifices made by those who have served their country. Plans are in place to



Forefathers Burial Ground: Chelmsford's first cemetery,

add a stage to the Park so that additional events may be held there, potentially increasing the use of the Park.

The Historical Commission has been inventorying the town's monuments. It was suggested during the public process that flags flown in Iraq and Afghanistan be used at these memorials, and that a walking tour of all the monuments be developed.

Burial Grounds and Cemeteries

As shown in Table 7.5 below, there are six cemeteries in town, four of which are listed on the MACRIS: Heart Pond Cemetery, Riverside Cemetery, West Chelmsford Cemetery, and Forefathers' Burials Ground. All but the Pine Ridge Cemetery are owned by the Town and maintained by the Cemetery Department.

Table 7.5: Burial Grounds And Cemeteries

Name	Address	Established
Forefathers Burial Ground: Chelmsford's first cemetery was established circa 1655. The earliest surviving Gravestone is dated 1690.	Intersection of Westford St. and Littleton Rd., Chelmsford Center	1655
Heart Pond Cemetery	Intersection of Garrison Rd. and Parkerville Rd., South Chelmsford	1774
Riverside Cemetery	Middlesex St., North Chelmsford	1841
West Chelmsford Cemetery	Cemetery Lane, West Chelmsford	1852
Pine Ridge Cemetery	130 Billerica Rd., Chelmsford	1888
Fairview Cemetery	Intersection of Main St. and Twiss Rd., North Chelmsford	1928

Quarries

The granite business in the Chelmsford area dates back to the early settlers who came to town in the mid-1600s. In those early days, granite was hewn from the giant boulders left by the upheaval of the glacier moving over the terrain. The granite was used for hearthstones, thresholds, steps and, most notably, the miles and miles of stone walls surrounding what were once fields belonging to farmsteads. Water power was harnessed to run the grist and saw mills in the late 17th century. Granite was then in great demand to build the dams that held in the water and to make the grinding wheels that ground the grain.

By the early 1800s, the granite industry in Chelmsford was enhanced by the construction of canals to move



Early quarrying operation in North Chelmsford (Source: *The Royal Shawcross Collection*)

goods from this area into Boston. Many buildings in Boston used the impressive Chelmsford Grey granite. Charles Bulfinch, a noted architect of this time, chose Chelmsford granite to build University Hall at Harvard University. Chelmsford Granite, purportedly from a site close to where the present day Fletcher Quarry is situated, was also used to build Quincy Market. The columns for Quincy Market were hauled to a landing in Chelmsford by 22 yokes of oxen. They were then loaded onto a barge and sent in to Boston. The oxen and ultimately the canal were replaced when the railroad reached town. The granite business was well established in Chelmsford by the 1880s.

Similar to the granite quarrying industry, limestone quarries and kilns date back as far as 1736. Most quarries were located along Beaver Brook and on Robbins Hill, and operated until 1830. These quarries were a major source of lime used in plaster for homes in Chelmsford and Lowell.

Endangered Historic Resources

The Chelmsford Historical Commission has identified the following historic resources as in danger of being lost:

- Middlesex Training School, Princeton Street is an excellent example of colonial revival school buildings in danger of demolition due to redevelopment. (This resource was demolished in 2020 due to safety issues after years of neglect.)
- Odd Fellow's Hall, Chelmsford Center, is owned by a west coast company, and is experiencing demolition by neglect.
- Poor Farm Barn, 110 Billerica Road, is aesthetically unattractive but still structurally sound. The owner has expressed an interest in converting the barn into artist studios.
- Sugden Press, School Street, is currently vacant.
- Railroad Station, School Street, is currently vacant.
- Vinal Square- without protection any building could be demolished. This area has the largest collection of mill era buildings in Massachusetts.
- The Bowling Alley in Vinal Square is one of the oldest duck pin bowling alleys in the country.
- Cottage Row and Gay Street Row Houses are fine examples of worker housing constructed to serve the mill workers in North Chelmsford.
- Historic houses located along Boston Road and in South Chelmsford, East Chelmsford and West Chelmsford.

PRESERVATION PLANNING IN CHELMSFORD

Chelmsford is fortunate to have a number of municipal and private non-profit organizations dedicated to preserving historic resources. Town Boards such as the Planning Board and Conservation Commission work collaboratively to ensure that the character of the community is

protected. Three preservation organizations, the Chelmsford Historical Society, the Chelmsford Historical Commission and the Chelmsford Historic District Commission often collaborate on preservation initiatives although their missions vary. The Garrison House Association and the Chelmsford Library also play a role in promoting historic preservation.

The Chelmsford Historical Commission was established under Massachusetts General Law, Chapter 40, Section 8D, and is comprised of three to seven members, who are appointed by the Town Manager, and approved by the Board of Selectmen. The Chelmsford Historical Commission's mission is to "identify and preserve the historical heritage and the resources of the Town of Chelmsford". To accomplish its mission, the Commission undertakes the following activities:

- "Compile and maintain an inventory of the town's historic assets.
- Encourage activities to educate and to broaden community awareness of Chelmsford's historical heritage.
- Work with public and private groups to promote preservation.
- Encourage and support the activities of the local historic district.
- Provide preservation information.
- Prepare and distribute preservation publications".

The Commission is also an information resource for businesses, homeowners and contractors who are rehabilitating their residences or businesses, and is also charged with administering and overseeing the town's Demolition Delay Bylaw.

The Historical Commission has been undertaking the Sign Project, which consists of inventorying structures and sites over 75 years old and placing a plaque on the structure or site identifying its age and original owner. The inventory work includes a site visit, an architectural survey, a footprint map, photos and a deed, tax, vital statistics, and media search. Completed inventory and survey data is placed on file with the Town and the State Archives.

Most recently, the Commission created a school program for the Chelmsford middle schools. Students tour the Forefathers Burying Ground, School House and Toll House on the Common while learning about the people who lived and worked in Chelmsford. The Commission works closely with the Community Preservation Committee, and contributed to the preservation of North Town Hall which is now on the National Register of Historic Places and has been awarded a State Preservation Award. The Commission has also worked to stabilize the head stones in Forefathers Burying Ground, Heart Pond and west Chelmsford Cemeteries. The Commission also participates in the Prelude on the Common in December by offering tours of the Toll House. When the Farmer's Market is open, the toll house is also open for tours and information about the Middlesex Canal and early Chelmsford history. The Historical Commission has worked with the Planning Board on bylaw changes to try to preserve our most historic properties.

The Chelmsford Center Historic District Commission was established under Massachusetts General Law, Chapter 40C, and is independent of the Chelmsford Historical Commission. It is comprised of not less than three and not more than seven members, who are appointed by the Town Manager, and approved by the Board of Selectmen. The Historic District Commission functions as a regulatory commission overseeing the Town Center Historic District. The purposes of the Historic District are:

- “To preserve and protect the distinctive characteristics of buildings and places significant in the history of the Commonwealth and its cities and towns.
- To improve and maintain the settings of those buildings and places.
- To encourage new designs compatible with existing buildings in the district”.³³

Review Standards are in place to guide rehabilitation and construction in the historic district in a fashion that preserves and protects the distinctive characteristics and features of the district’s resources.

The Historic District Commission is a very active body. In FY 2008, the Commission received fifteen (15) applications, of which fourteen (14) were accepted. Nine (9) Certificates of Appropriateness and five (5) certificates of Non-Applicability were issued.³⁴

The Chelmsford Historical Society, Inc. was organized in 1930, and is a private, non-profit organization dedicated to the preservation of the historical heritage of the town. The Society’s mission is to collect, preserve, exhibit and interpret documents and artifacts reflecting the life of Chelmsford and its people, from the 17th century to the present. The Society is located at the Barrett-Byam Homestead, where tours are offered to educate the public on Chelmsford’s rich history and culture. Visitors may also participate in a variety of educational programs and social activities.

Since 2007, the Chelmsford Historical Society has collaborated with the Chelmsford Library to digitize the historic photographs held in the library’s archive. These photographs are part of the Royal Shawcross photograph collection. The collection includes over 150 photographs taken in the North Chelmsford, Massachusetts area around 1901. The subjects include residences and businesses of the area, including the fire ruins of a major mill.

The Chelmsford Public Library provides a rich and extensive collection of information related to the town’s history. The Library website, www.chelmsfordlibrary.org, provides links to the Chelmsford Historical Society, the Chelmsford Historical Commission, the Garrison House and the Middlesex Canal Association. It also provides a link to the Chelmsford Town-wide History Project, a site that allows residents to help document and preserve the town’s history. The

³³ Town of Chelmsford website, http://www.chelmsfordgov.com/CHCwebsite/Historic_District_Home.htm

³⁴ Town of Chelmsford FY 2008 Annual Report.

Library also sponsors the “Keeping History Alive” program, bringing in speakers to address a number of topics related to history and historical events.

The "Old Chelmsford" Garrison House Association is a private non-profit formed to preserve the "Old Chelmsford" Garrison House located at 105 Garrison Road. In 1691, the Garrison House was one of nineteen British garrisons in Chelmsford. The Association raises funds for the preservation and maintenance of the buildings and grounds, and sponsors educational programs for children and adults. Programs include the study of colonial life, traditional crafts and skills and culture. Several Native American programs have been sponsored. The Garrison House Association has relocated four historic buildings, or partial buildings, slated for demolition to the campus as part of their preservation work.

Demolition Delay Bylaw

In April 2005, Chelmsford Town Meeting adopted a demolition delay bylaw that allowed the Historical Commission to stay for six months the demolition of structures at least 75 years old that are determined to be historically significant. In 2008, the bylaw was updated, increasing the length of the demolition delay to twelve months.³⁵ The demolition delay provides time for an owner to explore and develop alternatives to demolition, such as seeking out a person or entity willing to purchase, preserve or restore the building or structure rather than demolish it. A demolition delay bylaw does not guarantee that historic buildings will be saved, as buildings may be demolished after the delay period has expired if the property owner fails to identify a feasible alternative to demolition.

The Demolition Delay Bylaw has been in place for nearly fifteen years, the town has invoked the 12-month delay two times. The existence of the bylaw has encouraged property owners to cooperate with the Historical Commission.

Community Preservation Act

The Community Preservation Act (CPA) provides a source of funding for Open Space Preservation, Historic Preservation and Affordable Housing through a surcharge on the property tax. The money is kept in a separate CPA account by the Town. Each category (Open Space, Historic Preservation and Affordable Housing) must receive a minimum of 10% of the CPA funds available each year. The remaining 70% may be allocated for any one of the three categories, as Town Meeting sees fit.

In April 2001, Chelmsford voters passed a ballot question that allowed for a ½% surcharge on residential property tax bills, with an exemption for the first \$100,000 in value. In April 2007, voters passed a ballot question that increased the surcharge to 1.5 %, with an exemption for low-

³⁵ Chelmsford Demolition Delay Bylaw, February 25, 2009.

income families and moderate-income seniors. The State provides matching funds for the CPA program through a filing fee surcharge at the Registry of Deeds. The State match has been reduced in recent years, and may be as low as 35% for the next few years, as the housing market remains fairly flat and the number of deed filings is relatively low.

The Community Preservation funds are administered by the Community Preservation Committee (CPC), a nine-member committee. The CPC holds an annual public hearing to receive comments on the proposed Community Preservation Plan. The CPC then finalizes the plan for allocating the funds, and presents its plan to Town Meeting for approval. Town Meeting then votes on the proposed recommendations.

Community Preservation funds can be used for the purchase and/or preservation of historic structures registered with the State, or that have been determined to be historically significant by the Chelmsford Historic Commission. The CPC has established specific eligibility and selection criteria for projects seeking Community Preservation funding which are outlined as follows³⁶:

- Level of Historic significance.
- Is the building/property on or eligible for:
 - ✦ National Historic Register;
 - ✦ State Historic Register;
 - ✦ Local Survey of Historic Properties;
 - ✦ Chelmsford Historic District;
 - ✦ Chelmsford Historic Properties Survey; or
 - ✦ Qualification by the Historical Commission or Historic District Commission as historic resource?
- Age of building.
- Other recognition, including surveys, publications, awards.
- Integrity of resource
 - ✦ Location of the original site
 - ✦ Location in the original historic context
 - ✦ Retains elements of historic design or style
 - ✦ Retains original materials
 - ✦ Retains elements of historic workmanship
 - ✦ Retains feeling and association with the history of the town
- Protect, preserve, enhance, restore and/or rehabilitate town-owned properties, features or resources of historical significance.
- Protect, preserve, enhance, restore and/or rehabilitate historic, cultural, architectural or archeological resources of significance, especially those that are threatened, and in the

³⁶ Community Preservation Committee, "Selection Criteria", as provided by Bob Morse, CPC Chairman

case of proposals on private property, the proposal and/or proponent meets certain economic criteria as may be required by the CPC.

- Preserve the exterior structural integrity of endangered historic resources owned by non-profit organizations.
- Demonstrates a public benefit.
- Preserve endangered structures and features, such as barns, outbuildings and fences that are important to the Town's character.
- Preserve the settings for the historic buildings or cultural landscapes, such as farm land
- Preserve historic landscapes or enhance the public's ability to use and enjoy such landscapes.
- Are there potential archeological artifacts at the site?
- Rehabilitation work complies with Standards for Rehabilitation stated in the US Secretary of the Interior's Standards for the Treatment of Historic Properties.
- Demonstrates the ability to provide permanent protection for maintaining the historic resource and in the case of proposals on private property, the proposal and/or proponent have demonstrated additional protective measures and have met additional criteria, as may be imposed by the CPC, to ensure the continued permanent protection of the historic resource.
- Administrative and financial management capabilities of the applicant in order to ensure that the project is carried out in a timely manner, and that the historic resource be maintained for continued public benefit.
- Public support from users, preservation professionals and community leaders.
- Level of additional financial or in-kind services, beyond the Community Preservation funds, committed to the project.

Among the additional long-term projects outlined in the Community Preservation Plan is the stabilization of the barn at 110 Billerica Road, the preparation of a Historic and Cultural Resources Preservation Plan, a Commercial Façade Improvement Program, a Residential Façade Improvement Program, funding for the continuation of the inventory of historic structures, and the restoration of the box tombs in the Forefather's Burial Ground.

CULTURAL ORGANIZATIONS

The presence of strong cultural organizations in the Town of Chelmsford helps establish and strengthen its identity and plays a key role in shaping and promoting the image and character of the community. It is easy to take our cultural richness for granted and forget that others may not be aware of the range of cultural opportunities that the community offers. Remaining a dynamic community with broad cultural offerings requires the active promotion of cultural assets, and requires commitment and collaboration. Knowledge is the first step towards active engagement.

The Chelmsford business community has long recognized the value of arts and culture through its support of local organizations and sponsorship of cultural events. In fact, many businesses locate in this area precisely because the cultural opportunities offered in Greater Lowell are an attraction to employees. As the local economy diversifies, it is important to continue to create partnerships among cultural organizations and businesses. Such cross promotion of Chelmsford as a culturally diverse place to work and live will benefit both the business and arts communities. This point was raised during the public input sessions conducted for the Master Plan.

The Chelmsford Cultural Council (<https://www.chelmsfordculturalcouncil.org/>) is funded through the Massachusetts Cultural Council and the Town. The Council awards grant funding to local artists and organizations that contribute to the town's cultural community. The grants awarded fund individual artists, educational projects, and collaborative proposals that bring together artists, organizations and local cultural groups. The Chelmsford Cultural Council is committed to funding a diverse cross-section of activities that support a variety of art forms, works of local artists, environmental education projects and collaborative proposals that bring together artists, organizations, and local cultural groups in projects that serve Chelmsford and the surrounding communities. Goals include:

- Celebrate Chelmsford's cultural diversity and promote inclusivity;
- Support Chelmsford artists, cultural organizations and community events;
- Promote collaboration among local artists, cultural groups and community organizations; and
- Bring new artists and/or cultural opportunities to Chelmsford.

This is accomplished through Objectives such as:

- Review and decide on Cultural Council grants from state funding in October, November, and December;
- Give financial support from local funding to local musicians during the annual Holiday Celebrations on the Common in early December;
- Sponsor a photo contest from local funding with financial prizes for Chelmsford citizens and people who work in Chelmsford during the months of January and February;
- Attend Chelmsford Volunteer Fair in March to promote the Cultural Council and their activities; and
- Actively recruit new members and award one-time grants from local funding in May and June to local organizations like the Center for the Arts or the Chelmsford Public Library.

The Council has also created the International Exchange Grant Program. The program offers 6th grade teachers the opportunity to receive a \$1,000 grant to facilitate an international exchange of

cultural knowledge between a 6th grade classroom in Chelmsford and another classroom located outside of the United States.

The Chelmsford Arts Society promotes the arts through education, networking and scholarships. The Society focuses on displaying artwork in local business establishments and sponsors field trips and other events throughout the year.

Other cultural entities in town include the Illumination Opera, the Chelmsford Community Band and the Chelmsford Friends of Music. The Illumination Opera, www.illuminationopera.com is a new entity, and according to the Opera's webpage, "focuses on intergenerational projects to bring the opera experience to the community, involving performers of all ages". The Friends of Music organization, www.cfom.org, works with schools to assist with the music programs at all grade levels. The Community Band, www.chelmsfordband.org, presents concerts on Tuesday evenings during the summer months. The summer concert series is held on the Common.

There are a number of long-standing, annual events in Town which continue to be popular and contribute to the town's quality of life and sense of community. Among these are the Fourth of July celebration, the Memorial Day parade and the Arts Festival in the Town Hall. The Fourth of July celebration has been held every year for 42 years and is well attended. The event is family-oriented and includes carnival rides, game and food booths, fireworks and a parade. During the Fourth of July celebration, the Arts Society holds an art show at Town Hall. This display is the main annual event for the Arts Society and has been taking place for forty years. The Memorial Day Parade is held in both North Chelmsford and the Center, on alternating years.

There are two primary cultural focal points in Town: Chelmsford Center for the Arts in the Center Town Hall on North Road and the Adams Library on Boston Road. The Old Town Hall is considered by some to be a "cultural icon". The Center for the Arts includes an art gallery and office space rented as studio space based on a lottery system. Meeting space is also available to town organizations. (A lack of meeting space was identified as a community need during the public input process.) The Center for the Arts will be used by the Chelmsford Arts Society, the Illumination Opera, the Community Jazz Band and others. During the public input sessions, participants suggested that the Town should examine the feasibility of establishing an Arts District, should a large space, such as a mill, become available.

The Chelmsford Library plays a significant role in the cultural and artistic offerings within the town, with hundreds of programs provided annually. These programs included book discussion groups, conversation circles, movie nights, guest lecturers and authors, informational seminars, puppeteers, musical performances, arts receptions and children's programs. The Library has established partnerships with the Friends of the Library, volunteers, local agencies, the school system, non-profit organizations and businesses in order to offer its unique programming. During the public input sessions for the Master Plan, participants commented that the hours at the MacKay Library need to be increased to better serve young families.

PUBLIC INPUT

The Master Plan Committee developed a written survey for the 2020 Update. Below is a summary of input received that is germane to the Cultural and Historic Resources.

7f. Natural and Cultural Resources: Please indicate whether you would rate the following services, facilities, and characteristics, as they relate to Chelmsford, as excellent, good, fair or poor.										
	Excellent		Good		Fair		Poor		Unable to Score/ Unfamiliar	
Historic preservation	13.6%	137	47.6%	479	18.4%	185	5.2%	52	15.2%	153
Agricultural preservation	6.4%	64	26.4%	265	20.8%	209	12.5%	125	34.0%	341
Cultural and Community Events	14.5%	145	52.8%	530	20.4%	205	3.6%	36	8.7%	87

ISSUES AND OPPORTUNITIES

The public process for preparing this Master Plan has made it evident that the Town clearly values its historic resources. A stand-alone Historic and Cultural Resources Preservation Plan was completed in 2013 <http://www.townofchelmsford.us/DocumentCenter/View/3578/Historic--Cultural-Preservation-Plan-?bidId=> to inventory these resources and to outline a strategy to maintain, preserve, protect and promote these resources. The town needs to promote the town's rich cultural and historic fabric and charm in a way that builds awareness and support for its preservation, while at the same time promoting tourism and benefiting the local economy. In this regard, an information booth and/or board on the Town Common and or in the Old Town Hall should be established. Social media should also be used to promote historic awareness, issues and programs.

Implementation of the recommendations in the 2013 Historic and Cultural Resources Preservation Plan has been incremental. Town officials, boards and commissions need to work more closely with the Historic Commission to preserve historic features such as stone walls, facades and historic foundations by incorporating the preservation of these assets into the Town's existing bylaws and regulations. On several occasions the Planning Board and Historical Commission collaborated to advance zoning proposals to Town Meeting that would have provided zoning provisions to promote the historic preservation and reuse of existing single family structures in exchange for the creation of a new building lot. These proposals were not adopted by Town Meeting.

Per the 2010 Master Plan, design guidelines for commercial, industrial and multi-family have been adopted in conjunction with the CEIOD. These design guidelines should emphasize that preservation of these historic features is a priority for the community. In addition, the Town's subdivision regulations and zoning bylaw should provide guidance for the development community relative to this issue.

The Town should participate in the Historic Landscape Preservation Initiative administered by the Massachusetts Department of Conservation and Recreation. Under this program, DCR will assist the community in undertaking a reconnaissance survey to help develop an integrated and proactive planning approach for heritage landscape preservation.

Over the last decade the town has strengthened and improved its efforts to maintain town-owned historical buildings, as evidenced by the condition of the two historic town halls. A maintenance plan is needed for all of the Town's structures, including the historic properties. The Master Plan Committee believes that the preservation and maintenance of Chelmsford's historic public buildings should be a priority for the allocation of Community Preservation funds.

Resources should be made available to provide support to several boards and commissions, including the Historical District Commission, Historical Committee, Community Preservation Committee, and Agricultural Commission. This should include assistance in applying for grant money. The Town has established a program that provides financial assistance for facade improvements for private properties located within designated areas of Center Village and Vinal Square.

Over the last decade, the Town, led by the town clerk, has improved the level of protection and storage facilities for the town's historical documents and archives. Documents stored at Town Hall and at the Library are vulnerable to theft, vandalism, and damage from fire, insects, rodents and moisture. The Historical Society and the Library have begun to scan many of these documents, but the handling and storage of the original materials needs to be adequately addressed. The Town needs to institute procedures to train staff in accessioning, storing, and preserving historical record and documents. The Town should also consider constructing an Archives Center to stabilize and preserve Chelmsford's historic records.

The Town currently has several roadways that are designated as scenic roads, however, most local officials and residents are unfamiliar with the designation, and do not know whether there are procedures in place to administer or enforce the scenic roadway bylaw. Although Town Meeting has designated historic roads on three separate occasions, there is no mention of MGL statute, the designated roads, or a bylaw within the Town Code. The Town should review the bylaw and the administrative procedures to determine whether they are practical, consistent with the operating procedures of the Town, enforceable, and up-to-date. Local boards, committees and residents should be educated as to the significance of the designation, and should become familiar with the permitting procedures that are to be followed.

The North Chelmsford/Vinal Square area contains an impressive number of mill era structures, most of which are eligible for inclusion in the National Register of Historic Places. Clearly, this area is appropriate for the creation of a national or local historic district. However, during the public involvement process, some residents expressed concern regarding the political challenges of creating a formal historic district, and instead, suggested that the area be designated an

“honorific” historic district. The concept of establishing an historic district of some sort should be further explored through a series of meetings and conversations with neighborhood residents and businesses. The possibility of creating an historic district in South Chelmsford should also be explored. An educational process should be initiated so that citizens understand the significance, restrictions and impact of creating either a National Register district or a local historic district.

RECOMMENDATIONS

7.1 The Historical Commission should continue to implement the 2013 Historic and Cultural Resources Preservation Plan strategies to maintain, preserve, protect and promote the historic and cultural assets of the community. Major strategies contained in the preservation Plan include:

- Increasing Capacity of Local Preservation and Cultural Groups Increasing Membership, Communication, and Collaborative Opportunities for Town Committees and Community Organizations
- Increasing Technical Support for Town Committees
- Consider Certified Local Government Designation
- Continue Documentation of Historic Resources Chelmsford Historic Resources Inventory
- Explore Archaeological Reconnaissance Surveys
- Continue Historic and Cultural Advocacy & Education
- Expand Historic Sign Program
- Explore a Preservation Awards Program
- Explore Cultural Districts
- Continue Public Education
- Incorporate Preservation Interests into Chelmsford’s Zoning Bylaw and Development Review Process
- Cultural planning efforts - an assessment of past / present and future

7.2 An information booth should be established on the Town Common and/or in the Old Town Hall to promote tourism and benefit the local cultural economy. In addition, the Town should encourage the State to reopen the Visitor’s Center at the rest area on I-495 northbound in Chelmsford.

7.3 Design guidelines established for areas throughout the community should emphasize the importance of historic preservation.

7.4 The Town's subdivision regulations and zoning bylaw should be modified to provide the development community with guidance relative to the preservation of historic resources.

7.5 The Town should participate in DCR's Historic Landscape Preservation Initiative, in order to develop an integrated and proactive approach to heritage landscape preservation.

7.6 Continue efforts to routinely maintain and preserve Town-owned historic structures must be improved. A maintenance and preservation plan is needed for all Town-owned buildings, including its historic properties. The need for improved maintenance and preservation of these structures should be reflected in the funding priorities of the Community Preservation Committee.

7.7 Resources should be made available to provide support to several boards and commissions, including the Historical District Commission, Historical Committee and Agricultural Commission. This should include assistance in applying for grant funds.

7.8 Continue to implement the program for façade improvements located in a designated areas.

7.9 Continue to institute procedures and train staff in acquiring, storing, and preserving historical records and documents. The Town should also consider constructing an Archives Center to stabilize and preserve its historic records.

7.10 The Town's Scenic Roads Bylaw and administrative procedures should be reviewed to determine whether they are practical, enforceable, up-to-date, and consistent with the practices and operating procedures of the town. Town staff, boards and commissions should be educated in terms of the significance of the bylaw and the permitting procedures that are to be followed.

7.11 The concept of establishing historic districts in North Chelmsford and in South Chelmsford should be further explored. An educational process should be initiated so that citizens understand the significance, restrictions and impact of creating a National Register district vs. a local historic district.

7.12 Consider options for creating new cultural events with particular emphasis on Center Village and Vinal Square.

VIII. OPEN SPACE AND RECREATION

INTRODUCTION

Open space is essential to the quality of life within the community and should be viewed as the Town’s “green infrastructure” that supports and links the built and natural environments. It consists of a network of waterways, wetlands, woodland and forests, parks and conservation lands, and working farms. It provides ecological, social, economic and health benefits which can be described as follows: ³⁷

- **Ecological benefits:** Open space provides natural water filtration, drinking water protection, flood and erosion control, wildlife habitat and migration stopovers, and biodiversity conservation. Biodiversity encompasses all life and includes genetics, species, ecosystems and ecological processes.
- **Social benefits:** Open space contributes to community and individual quality of life by providing opportunities for recreational, civic, social and education interactions. It can contribute to community identity and sense of place by connecting residents to their natural and cultural heritage and by linking neighborhoods to the larger community.
- **Economic benefits:** Open space is often important for attracting and maintaining businesses in a community and a region. Proximity to open space often increases land values, and recreation and leisure activities can make significant economic contributions. Natural processes such as water filtration are much less expensive for communities than engineered alternatives such as water treatment plants.

Goal Statement: Manage, preserve and protect the open space and recreation resources and invest in the expansion of these areas in order to enhance the quality of life.

- *Encourage the utilization and enjoyment of open space and recreational resources by town residents.*
- *Improve the management and maintenance of the town’s open space and recreation assets.*
- *Provide connections between the town’s open spaces and recreation areas, and provide a link to regional resources and facilities, where appropriate.*
- *Provide a broad range of recreational opportunities for residents of all age groups and abilities.*

³⁷ American Planning Association, “Seven Principles of Green Infrastructure”, December 2002.

- **Health benefits:** Access to parks, greenways and trails creates recreational opportunities and encourages a physically active lifestyle. Open space helps to ensure clean and safe community water supplies and food production resources. It also mitigates air, water and noise pollution.

Chelmsford's green infrastructure must be managed and enhanced to support natural systems, protect groundwater, minimize flooding, improve economic viability, build community, and increase the well-being of residents. This section of the Master Plan provides an updated summary of the inventory of the Town's lands of conservation and recreation interests, and articulates the needs of the community, based on input received during the public input and plan development processes.

ACCOMPLISHMENTS SINCE 2010

Since completion of the Open Space and Recreation Plan in 2010, the Town of Chelmsford has made significant progress on its open space goals. It has added 155 protected acres to open space and recreation land. Some of the achievements are:

- The first phase of the Bruce Freeman Rail Trail was opened, creating a seven-mile transportation and recreation path through the town for non-motorized vehicles and pedestrians.
- Oak Hill, a 66-acre parcel, was transferred to open space, and officially granted to the Conservation Commission in July 2016. Public parking and access improvements have been made.
- A 15.85-acre parcel off of Smith Street was acquired by the Conservation Commission. It was officially named The Black Brook Wildlife Preservation in May 2016.
- Sheehan Farm, a 29.68-acre parcel, was acquired by the Town for agricultural purposes.
- The Walter F. Lewis Community Gardens were established at Sunny Meadow Farm.
- Heart Pond Playground and Beach were re-opened, with several upgrades.
- In 2015, the Roberts Field Advisory Committee was appointed. Roberts Field received \$500K of CPC funds to construct an all-inclusive playground.
- Varney Playground received a \$500K state PARC grant for purposes of relocating and constructing a new basketball court, renovating the existing bathhouse to create ADA accessible bathrooms and creating new ADA accessibility from the parking lot to the bath house and the waterfront.
- All renovations to Harmony Park were completed.
- In 2015, \$1.2M of CPC funds was used for the creation of an artificial turf field and other improvements, including an artificial track, at George Simonian Stadium.
- In 2015, a CPA article was approved that allocated \$248,352 (50% of the total funding, the other 50% was from the overall Town Budget) for the Phase 1 improvements of Varney Park. These improvements included the relocation and building of a full size basketball court, restoration of the Historic Bathhouse, and drainage and landscaping improvements. 50% of the allocated funding is slated to be returned to the Recreational Account from a State/Federal Matching grant program.

- In 2013, the Chelmsford Dog Park Advisory Committee was appointed. The Chelmsford Dog Park was proposed and eventually opened in 2016 with a \$250,000 grant from the Stanton Foundation.
- A Community Supported Agriculture Program (CSA) was established on Elm Street, and is headed by Farmer Phil Jones.
- In North Chelmsford, a community garden with 35 plots was established with an entrance on Wotton Street.
- In the fall of 2017, Town Meeting approved the transfer of 40,122 square feet off Mill Road to the Conservation Commission for Conservation purposes.
- In the spring of 2013, Town Meeting approved the transfer of four properties totaling 10.02 acres to the care and custody of the Conservation Commission for Conservation purposes. These parcels were located off New Fletcher Street (2), Riverneck Road and Orleans Street.
- In the spring of 2012, Town Meeting approved the transfer of 31.65 acres consisting within 11 different parcels to the care and custody of the Conservation Commission for Conservation purposes.
- In the fall of 2011, Town Meeting approved the transfer of 30 properties totaling 48.37 acres to the care and custody of the Conservation Commission for Conservation purposes.
- In the spring of 2011, Town Meeting approved the transfer of 15 properties totaling 64.14 acres to the care and custody of the Conservation Commission for Conservation and open spaces purposes.
- The Conservation Commission received state approval of the 2017 Open Space and Recreation Plan
- In 2012, the Tree Committee was established. Since 2013, the Town received designation as a Tree City USA.
- The Skate Park Committee was appointed. In 2018, reconstruction and improvements commenced.
- In 2020, the Town acquired, via CPC funds, the Warren Pohl farm, 54.03 acres of residentially zoned land in the South Row Park area of South Chelmsford between Acton Road and Boston Road. This property will be owned and maintained by the Conservation Commission.
- In 2020, via a Chapter 61 right of first refusal, the Town designated the Chelmsford Water District to acquire the Misty Meadows Farm, 41.16 acres of RB zoned land located in the Hitchinpost area of Chelmsford between Bridle Road and Pine Hill Road

EXISTING CONDITIONS

Per the 2017 Open Space & Recreation Plan, approximately 1,283 acres of the 3,633 acres classified as open space in Chelmsford are considered permanently protected. This is up from 991.16 of the 2,620.42 acres as calculated in 2010. Open space is defined as land that, for the most part, is free of structures. Permanently protected lands include state lands and municipal properties subject to Article 97, a conservation restriction or other deed restriction, as well as private properties subject to a conservation restriction or deed restriction. Unprotected lands of

conservation and recreation interest include those that are held for open space, historic or recreation purposes, but that are not permanently protected. Parcels that are under a Chapter 61, 61A or 61B agreement are considered to have limited protection.

Very little vacant land remains in Town, as shown in the Land Use section of this Master Plan. As part of the Master Plan process, Town staff updated the Town's inventory of lands of conservation and recreation interest, through an analysis of the Assessor's database, with input and review by Town staff and the Master Plan Committee. The inventory was categorized and compiled in matrix form using the 2017 Open Space and Recreation Plan Requirements outlined by the Division of Conservation Services (DCS). A copy of the updated inventory is contained in Appendix D. The open space and recreation parcels are also shown on Map ___. A more detailed description and inventory of the individual properties can be found in the Town's 2017 Open Space and Recreation Plan prepared by the Town's Community Development Department.

The open space and recreation parcels are broken out below according to ownership classification, i.e. publicly-owned and privately owned parcels. The information is broken out further in subsequent sections of this chapter, according to the level of protection from development that is afforded each property in the inventory by public, private and nonprofit owners.

Table 8.1 below summarizes Open Space and Recreation Land Inventory by ownership and classification (regardless of level of protection). The data shows that the Town's open space inventory now contains 3,633 acres, compared to 2,620 acres in 2010.

Table 8.1: Open Space Land Acreage by Ownership/Classification

Ownership/Category	2009 Acreage	2017 Acreage
Commonwealth of Massachusetts	73.75	109.52
Town of Chelmsford	1,439.34	2,395.14
Chelmsford Land Conservation Trust	74.28	79.25
Conservation Restrictions	71.03	66.09
Water Supply Districts	391.24	399.65
Cemeteries (Public)	56.38	57.81
City of Lowell	14.20	14.63
Chapter 61	112.23	102.65
Chapter 61A	256.97	233.28
Chapter 61B	28.93	72.91
Institutional and Other Private	102.07	102.07
Total	2,620.42	3,633

Source: 2017 Open Space & Recreation Plan

Permanently Protected Open Space

Permanently protected open space includes lands dedicated to conservation and wildlife habitat by state agencies, non-profit organizations, and the Town, as well privately-owned land under a conservation restriction (CR).

Chelmsford has over one thousand acres of permanently protected open space owned by the State, the Town, the Chelmsford Land Conservation Trust and the Water Supply Districts, or subject to a Conservation Restriction. Protected open space provides a number of important benefits to the community including water supply protection, preservation of natural resources and habitats, recreational opportunities, and retention of community character. Table 8.2 below summarizes the statistics regarding level of protection and ownership of the permanently protected parcels.

Table 8.2: Permanently Protected Open Space-2009 and 2017

Ownership/Protection	2009 Total Acreage	2017 Acreage*
Commonwealth of Massachusetts	64.97	56.15
Town of Chelmsford	778.11	1,076.85
Chelmsford Land Conservation Trust	74.28	79.25
Conservation Restrictions (Public and Private)	71.03	76.44
Water Supply Districts	2.77	4
Total	991.16	1,192.69

*Two new CR's were created that were not captured as part of the 2017 Open Space & Recreation Plan, including Alyssa Way off Riverneck Road, an open space cluster with a 3.5-acre CR, and Collins Circle (271 Riverneck Road), a 1.91-acre CR for turtle habitat.

State Lands: The State owns a total of seven parcels in Chelmsford, of which four (4) are permanently protected, comprising 56.15 acres. The two largest parcels are on Billerica Road (27.64 acres) and off Zeus Drive (20.60 acres). The State also owns the Bruce Freeman Rail Trail right-of-way, which runs through the Town, from the Lowell/Chelmsford line near Cross Point, to the Chelmsford/Westford line near Heart Pond.



Cranberry Bog Reservation in the winter months.

Town Lands: The Town owns 1,076.85 acres of permanently protected land. The six largest protected areas are the Cranberry Bog Reservation (180 acres), Russell Mill Town Forest on Mill Road (132 acres), the Lime Quarry Reservation on Littleton Road (60 acres), the George B.B. Wright Reservation (90.1 acres), Oak Hill (66.37 acres) and the Thanksgiving Forest (45.6

acres). It should be noted that only twenty (20) of the Town-owned, permanently protected parcels contain more than ten (10) acres.

Water Supply Lands: There are a total of 391.24 acres of water supply lands owned by the three Water Supply Districts within the Town, however, only two (2) parcels containing 2.77 acres are classified as permanently protected.

Conservation Restrictions (CR): A Conservation Restriction is a voluntary and legally binding document through which a land owner agrees to limit the use of his or her property for the purpose of protecting the conservation value of the land. The land owner receives an immediate tax deduction, and the grantee, usually a non-profit or municipal entity, receives assurance that the land will not be developed. There is one (1) Town-owned permanently protected parcel totaling 5.06 acres, and are eleven (11) privately-owned permanently protected parcels totaling 71.38 acres, subject to a CR.

Land Trust Parcels: The Chelmsford Land Conservation Trust owns 79.25 acres. The largest land area held by the Trust is the Warren Wildlife Sanctuary (24 acres) on Boston Road.

Unprotected/Limited Protection Lands

Of the 3,636 acres of open space approximately 2,353 acres are Unprotected and limited protection lands. These include public lands currently held as open space, historic parcels, or recreation land that does not have legal permanent protection, as well as private parcels with limited or no restrictions on development. Limited protection open space includes land covered by revocable restrictions against development or a change in use. A farm that is under a Chapter 61A agreement is an example of temporarily protected open space. Similarly, school athletic fields, or other open space on school grounds, could be converted to another use and are included within this category. The following provides a summary of properties that fall under this classification:

Schools: There are 230.46 acres of school property in Chelmsford that are not permanently protected, including school athletic fields and playgrounds.

Town Parks: The Town owns 86.06 acres of park and playground land. The Community Education Office schedules use of outside school fields and Town athletic fields. The Town Common and North Common are also included in this category, but are currently under the control of the Board of Selectmen. While many residents may think of the Commons as cultural resources, they also provide important open space within the Town Center and Vinal Square, serving as a public gathering place for festivals, concerts, and other local events. While the Commons do not appear to be permanently protected from a legal perspective, public sentiment would most likely prohibit their conversion to another use.

Water Supply Lands: Five (5) parcels, totaling 34.10 acres, owned by the East Chelmsford Water Supply District, twelve (12) parcels totaling 87.94 acres owned by the North Chelmsford Water District, and fifty-eight (56) parcels totaling 266.43 acres owned by the Chelmsford Water District, are classified as having limited or no protection. Land under the ownership of the water districts is protected from development while the associated water supply is in use. It is important to note, however, that development of facilities related to water treatment, distribution and maintenance are allowed on these parcels and should a drinking water source be decommissioned, the land could be sold and developed.

Cemeteries: Chelmsford contains 56.38 acres of public cemetery lands, which are unlikely to be developed in the future. This includes one (1) cemetery parcel containing 0.43 acres, which is owned by the City of Lowell.

Other: There are eight (8) parcels in this category comprised of 20.38 acres of capped landfill at Swain Road.

Publicly-owned Unprotected/Limited Protection Lands

Unprotected/limited protection public lands include lands that are held as open space or used as recreation land, but do not have permanent protection. As shown in Table 8.3 below, there are two hundred seventy seven (277) parcels of unprotected/limited protection publicly-owned lands within the community, comprising a total of 936.10 acres. This includes eleven (11) cemetery parcels totaling 56.38 acres.

Table 8.3: Publicly-owned Unprotected/Limited Protection Lands

Ownership	Total Acreage
Commonwealth of Massachusetts	53.00
Town of Chelmsford (Including cemeteries)	480.00
City of Lowell	14.63
Water Supply Districts	388.47
Total	936.10

School properties comprise a portion of this land. Other properties include Southwell Field (26 acres), Swain Road Landfill, Roberts Field (20.6 acres), and the Chelmsford Country Club (35 acres).

There are three (3) water supply districts in Chelmsford which own seventy-three (73) parcels of land totaling 388.47 acres. In addition to the cemeteries that are publicly owned, there are six (6) privately owned cemetery parcels totaling 102.07 acres.

Private Unprotected/Limited Protection Lands

As shown in Table 8.4 below, there are forty-five (45) parcels of privately-owned land with limited or no protection. Collectively, these parcels comprise 479.96 acres.

Table 8.4: Private Unprotected/Limited Protection Lands

Category	2010 Total Acreage	2017 Total Acreage
Chapter 61	112.23	102.65
Chapter 61A	256.97	233.28
Chapter 61B	28.93	72.91
Cemeteries	102.07	71.12
Total	500.20	479.96

Under Chapters 61, 61A and 61B of the Massachusetts General Laws (M.G.L.), a land owner who has ten (10) contiguous acres being actively used as forest (Chapter 61), or five (5) contiguous acres in active agriculture (Chapter 61A), or five (5) contiguous acres of open space/recreational land (Chapter 61B), is entitled to certain local tax abatements. These abatements are given in exchange for the property owner retaining the land in its current use as agriculture, forest, recreation or open space.

Chelmsford currently has 408.84 acres of private land enrolled in the Chapter 61, 61A and 61B tax abatement programs. Over half of this land (57%) consists of agricultural parcels in the Chapter 61A program. Should the current land owners decide to sell or develop property covered under these programs, the Town of Chelmsford will have an opportunity to exercise its right-of-first-refusal, or may alternatively elect to assign this right to a non-profit conservation organization or the Commonwealth of Massachusetts. A land owner who has his property classified under Chapter 61, 61A or 61B, must notify the Chief Elected Official (Board of Selectmen Chairman), the Board of Assessors, the Planning Board, the Conservation Commission and the State Forester, when all or a portion of the land is being sold or converted to a disqualifying use.

It should be noted, that parcel 81-321-1 is classified and taxed by the town as being in both Chapter 61 and Chapter 61A categories. The acreage listed corresponds to the acreage in those categories, and the parcel is listed twice on the attached inventory (See Appendix D).

Sheehan Farm and Sunny Meadows were removed from the unprotected open space as both have received permanent Agricultural preservation Restrictions (APR's).

Recreation Programs

Chelmsford is an active, sports-oriented community, and the Town provides facilities and programs for its residents, including playing fields, courts and playgrounds for organized activities and leisure pursuits. In spite of recent budgetary challenges, the Town still manages to provide an array of programs for residents of all ages by partnering with private youth sports organizations, using volunteers wisely, and working collaboratively with non-profits, such as the Friends of the Library and the Friends of the Senior Center.

Public recreation facilities are detailed in Table 8.5 below. All recreation facilities and programs are scheduled by the Community Education Office located at the Westlands School at 170 Dalton Road.



Varney Park in North Chelmsford

Table 8.5: Public Recreation Facilities (Excluding Schools)

Name	Location	Facilities
Old Town Hall	North Road	Various rooms, auditorium
Chelmsford Country Club	Park Road	Golf course, function hall
Chelmsford Forum	Brick Kiln Road, N. Billerica	Skating rink
Town Common	North Road & Westford Road	Open area
Highland Field	Highland Road	Soccer field
Little League Fields	Chelmsford Street	Baseball fields (4)
McFarlin Field	Chelmsford Street	Softball field
Murphy Field	Raymond and Mill Road	Soccer Fields (2)
Robert's Field	Old Westford Road	Baseball Fields (2), soccer field, playground, skating pond
Southwell Field complex	Wotton Street	Softball fields (3), Walking trail, playground, boat ramp, beach
Varney Playground	Adams & Sherman Streets	Baseball field, basketball court, tennis courts (2), beach, playground
Strawberry Hill Field	Jordan Road	Baseball field, playground
Town office gym	50 Billerica Road	Gym (volleyball, basketball)
Dog Park	52 Richardson Road	An off-leash park open to all dogs with a current license and rabies tag

Source: Northern Middlesex Council of Governments

The nine (9) public schools all have athletic facilities, fields and/or playgrounds. Table 8.6 on page __ details the specific recreational resources that are available at each school.

MAP 8.1: OPEN SPACE AND RECREATIONAL LAND

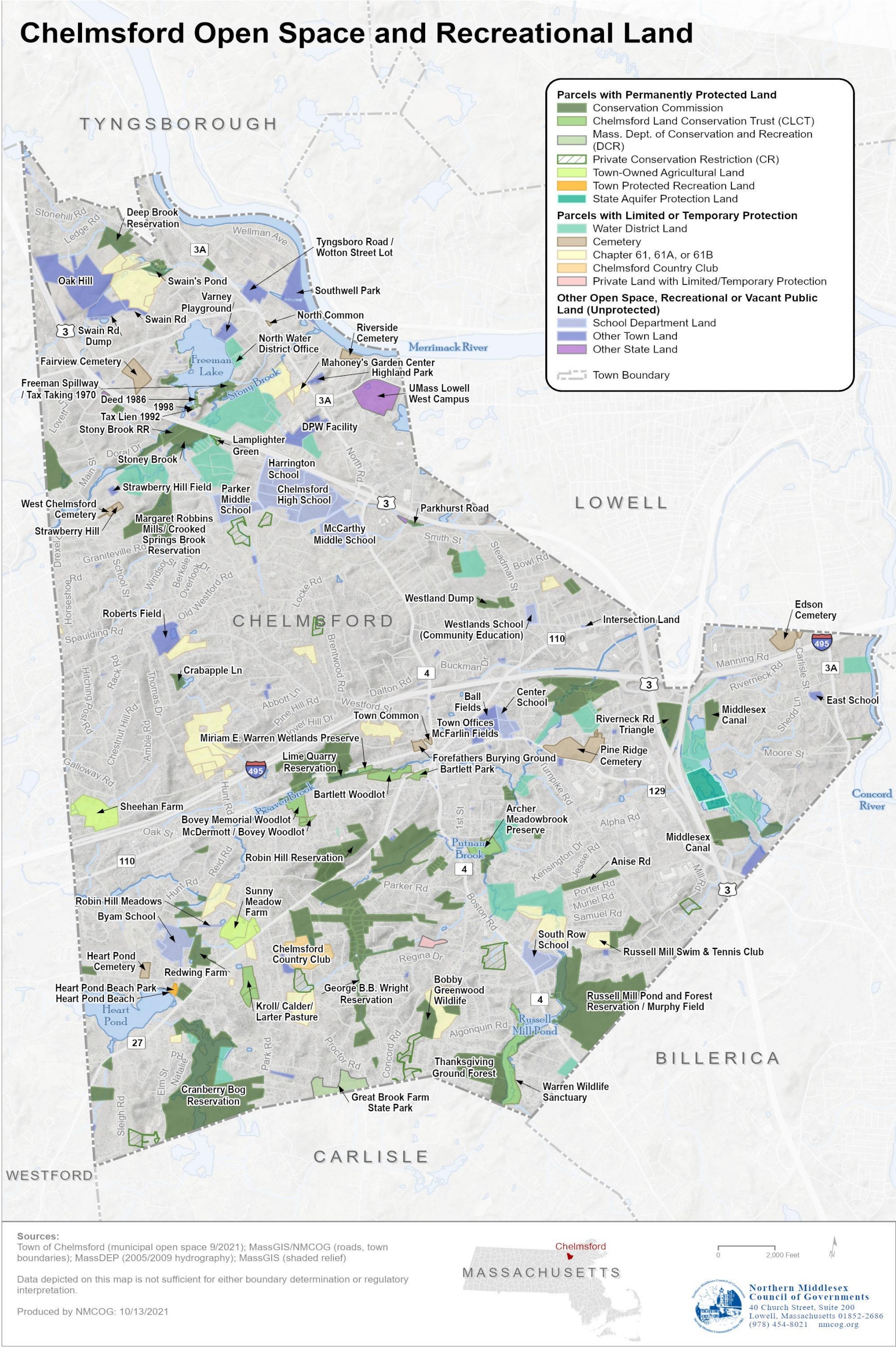


Table 8.6: School-Based Recreational Resources

Name	Location	Facilities
Byam School	Maple Road	Playground, open area
Center School	Billerica Road	Playground
Chelmsford High School	Richardson Road	Football stadium, track, tennis courts (6), basketball courts (3) outdoor hockey courts (3)
	Graniteville Road	Baseball Fields (2), softball fields (2), football field, field hockey fields (2), soccer fields (2)
East School	Carlisle Street	Softball field, basketball court, playground
Harrington School	Richardson Road	Soccer fields (2), playground
McCarthy Middle School	North Road	Football field, baseball field, softball field, soccer fields (2), basketball courts (2) Track, skateboard park, playground
Parker Middle School	Graniteville Road	Baseball field, softball field, playground, open area
South Row School	Boston Road	Softball field, soccer fields (4), tennis courts (5), basketball courts (2), playground

Source: Northern Middlesex Council of Governments

A complete detailed listing of the facilities and fields can be found on the Town's website at www.townofchelmsford.us/recreation-facilities-fields.com . Additional information regarding these facilities can also be found in the Facilities and Services section of this document.

In 2013, the Town appropriated \$2.5 million, of which \$1.2 million used CPC funds, for purposes of installing two new turf fields at CHS Simonian Stadium and the McCarthy Middle School Field.

The Town formally acquired the Chelmsford Forum, a public indoor skating rink in 2017. The Chelmsford Forum is privately operated.. The facility is located on Route 129 at the Chelmsford/Billerica line, seats 3,500 patrons and offers a full service professional shop and ice skating instruction. The rink can be rented for private functions.

The Chelmsford Skate Park fell into disrepair. The Chelmsford Skate Park Committee plans to build a longer-lasting park with more permanent materials. This work will be done in two phases. The total estimated cost for the park, for both phases and maintenance, is \$36,370. With donations from the Town, current donations and other fundraising functions, the project is expected to receive a little over \$21,000.

In 2018, Friendship Park Playground at Robert's Field was completely rebuilt using Community Preservation Fund monies appropriated by Town Meeting members in the amount of \$450,000. Volunteers raised an additional \$86,000 to contribute toward the cost of construction.

Chelmsford owns two Town beaches at Freeman Lake and Heart Pond. From June to Labor Day, the beach at Freeman Lake is opened and staffed. During the public input sessions, it was suggested that the beach at Freeman Lake/Varney Park be opened to Town residents only, in

order to avoid the security issues that occurred there in the past. It was also suggested that a ramp be constructed from the parking lot area to the playground.

The Town continues to maintain the Bruce Freeman Rail Trail via the assistance of the Friends of the BFRT, the BPAC and DPW. The Trail traverses the town for more than six miles, from the Lowell line to the intersection of Routes 27 and 225 in Westford. The section of the Phase I project located in Chelmsford is 5.2 miles long, while an addition 1.6 miles are located in Westford. The trail is widely used by hikers, bicyclists, inline skaters and runners. Future phases of the trail outside of Chelmsford are in the design and construction stages. When these phases are complete, the trail will eventually extend all the way to Framingham. The Rail Trail is also a key link in completing the larger Bay Circuit trail which loops around the Boston metropolitan area, extending from Newburyport to Duxbury.

The Town has several other marked trails, mostly located on Conservation land, across fields and along waterways. These trails offer a variety of passive recreation opportunities including hiking, jogging, bird watching, mountain biking, horseback riding, and cross-country skiing. Maps of the trails can be found on the Chelmsford Open Space Stewardship Program website at www.thechelmsfordian.com/thechelmsfordian.

The Chelmsford Council on Aging, located at the Town's Senior Center at 75 Groton Road, offers recreational programs designed for senior residents. Educational programs in computers, dancing, exercise, band, chorus and woodworking are among the items offered, along with quilting, bingo and card games. The Council also sponsors day and bus trips, adult day care, and walking groups. More complete information can be found at www.townofchelmsford.us/Aging-Human-Services.com.

There are several privately-owned recreational facilities that serve the needs of town residents. These include the Chelmsford Swim and Tennis Club, the South Chelmsford Rod and Gun Club, and the Lowell Sportsman's Club, Russell Mill Club, Lighthouse School and the Paul Center for Learning.

There are several local organizations that utilize town public lands via exclusive agreements. These include the Chelmsford Youth Baseball, Chelmsford Youth Soccer, Chelmsford Girls Softball, New England Mountain Bike Association, Chelmsford Pop Warner Football, and Chelmsford Youth Lacrosse.

LOCAL CAPACITY

Chelmsford has several organizations working to preserve open space and natural resources within the community. The various Town departments, water districts and conservation organizations work together to ensure that these resources are protected for future generations:

- The Chelmsford Conservation Commission administers the Massachusetts Wetland Protection Act and the local wetlands bylaw. The Commission also acquires, holds and maintains property on behalf of the Town in order to protect land and water resources. The Commission has one staff person who administers the permitting process and oversees day-to-day activities.
- The Planning Board is responsible for implementing the Town's Zoning Bylaw and working with developers to ensure that important conservation land and natural resources are protected during the development process. The Community Development Director oversees the administrative functions for the Planning Board.
- The Town's three water districts manage the Town's water supply, storage, and distribution system. They also provide public education regarding water conservation and environmentally-sensitive lawn care techniques.
- The Chelmsford Land Conservation Trust is a non-profit organization, founded in 1961, that focuses on land preservation in Chelmsford. The Trust works with local landowners in an effort to determine appropriate ways to preserve the Town's remaining undeveloped properties and open areas. Currently, the Trust owns eighty (80) acres of conservation lands.
- The Chelmsford Open Space Stewardship is a group of volunteers working on behalf of the Chelmsford Conservation Commission and other open space organizations. The Open Space Stewards maintain and improve the trail systems and facilities within these open spaces. Their activities range from picking up trash and keeping the trails free of fallen trees, to replacing worn out bridges, kiosks and other facilities. While the Conservation Commission protects and manages open space property, the Stewards maintain and improve the trail systems within these properties, and provide a daily presence that serves to deter vandals. To date, the Stewards have rehabilitated and improved trails on more than 1,000 acres.
- In FY18, Facilities hired a new Parks and Playground Coordinator to assist the Facilities Manager with the maintenance of Town-owned properties. The principal duties of the position include: inspect, maintain and repair playgrounds in the public parks and on school property; supervise the maintenance and upkeep at Varney Park and Heart Pond during the summer months; and help to support town-wide events and volunteers throughout the year. While the Town's Department of Public Works Parks Division consists of one full-time employee who maintains the Center and North Town Commons, as well as the Town's traffic islands, the Town devotes very few of its budgetary resources to maintaining its conservation lands (a figure of 25 cents per acre was cited by

the Chelmsford Open Space Stewardship during the public input process), and relies heavily on volunteers. This is offset with the use of Community Preservation Funds for capital improvements.

During the Visioning Session for the development of the Master Plan, residents cited the Conservation Commission's ability to partner with local groups as one of the Town's strengths. It was noted that there are a multitude of entities who volunteer to maintain these facilities such as the Chelmsford Business Association, the Garden Clubs, the Lowell Sportsman's Club, the Police Department and the Fire Department.

OPEN SPACE AND RECREATION PLANNING EFFORTS

Chelmsford's 2017 Open Space and Recreation Plan established the following goals:

- Understanding Needs
- Managing Existing Resources
- Promoting Public Outreach
- Creating new Opportunities.

These goals depend upon a coherent strategy for open space acquisition, land management and stewardship, along with dedicated funding. Absent both the requisite policy framework and adequate staff capacity, the Town has implemented some of the previous action items. However, in some cases, recommendations have not been worked on since the plan was initially completed. For example, the previous action plan called for improving accessibility to the Town's open areas for persons with disabilities.

As expressed during the public input process for the Master Plan, Chelmsford residents have long valued the Town's open space and recreation resources and have consistently demonstrated their commitment through actions such as the approval of local funding for open space acquisition and the adoption of the Community Preservation Act (CPA).

The Community Preservation Act continues to play a critical role. Over the past decade the CPC has established two capital accounts: open space and recreational. These accounts are dedicated to provide cost sharing funding for smaller projects such as improvements and replacements to trails, bridges for open spaces and accessory structures related to recreation. The major challenge for CPC is the continued decline in state matching funds which have declined from a 100% match down to approximately 25-28% in recent years. The Town's average annual state and local disbursement is approximately \$850,000.

In April 2001, Chelmsford voters passed a ballot question that allowed for a ½% surcharge on residential property tax bills, with an exemption for the first \$100,000 in value. In April 2007,

voters passed a ballot question that increased the surcharge to 1.5 %, with an exemption for low-income families and moderate-income seniors.

As discussed in the Cultural and Natural Resources section, the Community Preservation Act (CPA) provides a source of funding for Open Space Preservation, Historic Preservation, Recreation and Affordable Housing through a surcharge on the property tax. The money is kept in a separate CPA account by the Town. Each category (Open Space, Historic Preservation and Affordable Housing) must receive a minimum of 10% of the CPA funds available each year. The remaining 70% may be allocated for any one of the categories, as Town Meeting sees fit.

The CPA is administered by the nine-member Community Preservation Committee (CPC). The CPC holds an annual public hearing to receive comments on the proposed Community Preservation Plan. The CPC then finalizes the plan for allocating the funds, and presents its plan to Town Meeting for approval. Town Meeting then votes on the proposed recommendations.

WALKING & CYCLING PLANNING EFFORTS

Since 2010 Master Plan, the Bicycle and Pedestrian Advisory Committee has been appointed and the Committee issued a Bicycle and Pedestrian Plan in November of 2015, with an update in 2020. This plan outlines short-term, intermediate and long-term recommendations related to pedestrian and bicycle improvements such as sidewalks, crosswalks, signage and bike lanes.

The BPAC also has developed a Chelmsford Rail Trail Light Maintenance Crew and BPAC Gift Fund. This fund will accept private donations to fund bicycle and pedestrian initiatives in the town. The donated money is held in a special account that can be used for only that purpose. The BPAC makes recommendations to the town about projects to be funded from that account. Potential bicycle or pedestrian initiatives to be funded from the BPAC Gift Fund: -Bike racks in schools and commercial areas -Pedestrian crossing signs -Bike route signs -Bike safety programs -Safe Routes to Schools training -Bike commuting workshops. BPAC has also published guidelines related to bike rack types and locations.

AGRICULTURE

In the beginning, Chelmsford was an agrarian community, but suburbanization over the past six decades has had a dramatic impact on the town's agricultural landscape. The demand for new residential development has driven land values far above levels that make it profitable for most agricultural activities that lack external support, resulting in the loss of the Town's working farms. This has caused not only a visual change to the Town, but a cultural change as well. Today, only a handful of larger farms remain in active production of field crops, although numerous smaller agricultural operations remain in Chelmsford, utilizing smaller parcels of land. These smaller farms represent the future of suburban agriculture.

Preserving the remaining farmland and supporting local agricultural businesses has been a growing concern at the Federal, State and Town levels in support of diverse local food sources, healthy food supplies for the needy, demands for landscape materials to support the housing market, and equestrian recreation, supported by the region's favorable economy. In addition, driven in part by the recent COVID-19 epidemic, there has been a significant increase in the demand for plants and material supplies for domestic vegetable growers.

In 2009, the town formed an Agricultural Commission and in 2011 the Town adopted a Right to Farm bylaw in an effort to preserve the town's remaining agricultural heritage. The Agricultural Commission supports the farming community and serves as facilitators for the pursuit of agriculture and agricultural-based economic opportunities in Town. The Commission is also charged with developing a work plan to guide its activities and to advise the Town Manager in the care and use of Town-owned agricultural properties. The Right to Farm bylaw protects farmers from regulation that would hamper their ability to farm.

In Massachusetts, most farms are small farms. Farming in Massachusetts is done primarily on smaller plots by part-time farmers. According to the last USDA Farm Census, 45% of Massachusetts farms sold less than \$2500/year, and 33% of farms were less than 9 acres, while over 60% of farmers worked off the farm at other jobs. While the number of large farms in the state is declining, the number of these small farms increased by 66% between the 2002 and 2017, according to the Massachusetts Agricultural Censuses. Because of the continuing climb in property values driven by the housing demand, these small commercial growers depend heavily on the availability of public land and on the Right to Farm protections to be able to affordably produce local products. See the presentation of the 2017 Massachusetts Agricultural Census at <https://ag.umass.edu/resources/massachusetts-agricultural-data/farm-operators/full-part-time-farming> for details.

In Chelmsford, commercial agricultural activity has been on the increase. In 2020, three new small farms emerged, each using some amount of Town-owned agricultural land. Bitznpeace Farm, leases 5 acres of Town land at Wotton Street and has 3 acres of space on High Street., Littleton Road, and at Sunny Meadows, while NewMax Farm leases 3.5 acres of Town land at Sunny Meadows, with smaller plots at Sunny Meadows and Wotton Street. And a mushroom farm recently installed environmentally controlled growing spaces on the Sunny Meadows property.

In addition to the Right to Farm bylaw and the Agriculture Commission, there is another tool that can be used to protect and promote agriculture: the agricultural and horticultural land classification program under Massachusetts General Laws 61A. Chapter 61A is a voluntary program that is available to owners of larger parcels used for commercial agriculture and horticulture. It is designed to encourage the preservation of the Commonwealth's valuable farmland and promote active agricultural and horticultural land use, and offers significant local

tax benefits to property owners willing to make a long term commitment to farming. Chapter 61A applies to lots that contain no taxable improvements (open space land), in parcels with a minimum of 5 acres. Properties enrolled in Chapter 61A are taxed based on the current use of the property (i.e., the productive potential of the land for growing agricultural products) at a rate established annually by the State, instead of the fair market or development value that would apply to general use in the Town. In exchange for these benefits, the city or town in which the land is located is given the right to recover some of the tax benefits afforded the owner and an option to purchase the property should the land be sold or used for any purpose other than to continue raising farm products. Approximately 173 acres of Chelmsford's private farmland is currently classified as Chapter 61A agricultural land according to the Chelmsford Assessors records. The Town maintains a prioritized list of unprotected open space lands, including the parcels that currently have Chapter 61A designation. Other Chelmsford forested and recreational privately owned open space is also enrolled in tax incentive protection programs under Ch 60 for managed forests and Ch 61B for recreational open space.

Table 8.7: Chapter 61A Properties

Current Chapter 61A Acreage			
Location	Current Use	Owner	Acres
ACTON & PROCTOR RD	Field Crop and Non-productive	Charles Parlee	26.09
CLINTON AV	Pasture	Clare Manville	5.67
CONCORD RD	Field Crop	Marlee E. McKay Trust	7.72
ELM ST	Non-productive	Pat Wojtas	5.25
LANTERN LN	Nursery	Jeff Sanborn	6.93
MILL RD	Woodlot and Nonproductive	John Chase	27.00
PINE HILL RD	Field Crop, Truck Crop Related Use and Non-productive	Henry Parlee	32.72
PRINCETON ST & RICHARDSON RD	Woodlot, Pasture and Non-productive	Mahoney Group LLC	27.27
PROCTOR RD	Woodlot, Truck Crop, Related Use and Non-productive	Frank Wojtas	22.35
WESTFORD ST	Orchard	Albert Lupien	11.87
Total			172.87

The approximate distribution of uses for this land is as follows:

Use	Total	
Field Crop	29.31	16.86%
Non-productive	69.25	39.83%
Nursery	6.93	3.99%
Orchard	11.87	6.83%
Pasture	8.67	4.99%
Related Use	17.45	10.04%
Truck Crop	3.39	1.95%
Woodlot	27	15.53%
Grand Total	173.87	100.00%

When an owner of Open Agricultural Land that is enrolled in the tax reduction program under Chapter 61A decides to stop farming and sell the property, the Town has the right to first refusal to purchase the property, based on the current appraised pricing. Community Preservation Funds acquired through the property tax surcharge and partial state matching can be used for this purpose, with the approval of Town Meeting. Since the founding of the Community Preservation Fund, significant land has been acquired by the town for agricultural preservation.

In 2008, the Town acquired Sunny Meadow Farm (also known as the Walter Lewis Farm) using Community Preservation Act money. The 22.5 acre farm located between Robin Hill Road and Acton Road was sold to the Town for open space purposes and is subject to a Conservation Restriction, which is held by the Chelmsford Land Conservation Trust. This agricultural property is managed by the Board of Selectmen as the site of Chelmsford's Walter F. Lewis Community Garden, a handicap accessible garden and tree propagation nursery, with remaining areas being leased to commercial farmers. A new parking area, irrigation system, and other improvements made to the site help support continued agricultural use of the open space. At present, the site is providing affordable growing space for over half a dozen private commercial growers, with products including market gardening, greenhouse vegetables, maple syrup, Asian vegetables, specialty mushrooms, and wine grapes.

In 2013, the town acquired the Sheehan Farm, 27.82 acres along Pine Hill Road, using CPC funds, for agricultural purposes. The Agricultural Preservation Restriction on this property is held by the Chelmsford Land Conservation Trust. This site is also leased to commercial growers, and is currently used for hay fields, vegetables and small fruit production.

In 2020, the Town acquired the Warren-Pohl Farm consisting of 54 acres of land with several barns, located off Boston Rd. and behind Bartlett St., for the purpose of Open Space, including without limitation, for agricultural purposes and for a municipal wellfield/water supply. A management plan has not yet been implemented for this property.

In 1998, the Town acquired 11 acres of open farmland that sits between Tyngsboro Road and Wotton Street in North Chelmsford. This property is dedicated to agricultural use under the management of the Board of Selectmen. It is currently used in part for community gardens, and a large section is under commercial agricultural lease and being used for market gardening.

The Town has also acquired a 50-foot wide parcel of land that runs parallel to the transmission corridor between the Bruce Freeman Rail Trail (BFRT) and Robin Hill Road. A bicycle and pedestrian path is planned within the parcel to link Sunny Meadow Farm to the BFRT.

Support for local agriculture also includes economic support not related to land. The Town has hosted both winter and summer farmers' markets. These events offer opportunities both to local buyers and to local farmers.

Support includes cultural activities as well. A prime example of this would be the annual Farm Fair.

COMMUNITY NEEDS

Professional planners have used a number of standards over the past several decades to evaluate the amount of park and recreation land appropriate for a given community. These standards were meant to serve as a guide and were interpreted according to the particular situation to which they were being applied. Over time, the figure of 10 acres per 1,000 population became the commonly accepted standard developed by the National Recreation and Park Association (NRPA), but this standard was determined to be inappropriate.³⁸ Currently, the NRPA recommends a range of between 5.4 and 15.0, with a median of 9.6 acres of total open space per every 1,000 residents, and further refines these recommendations according to different types of open space, particularly active and passive open space. More specifically, NRPA recommends a range of between 1,233 and 3,140 with a median of 1,963 residents per park.

NRPA standards only include municipally-owned, publicly accessible recreation and active parkland. Institutional, passive or privately-owned open space is not factored into the NRPA methodology. The NRPA Level of Service Approach standards are only applicable to park and recreation services and exclude passive recreation open space parcels.³⁹

While industry guidelines developed with input from various regions of the country are a useful starting point, the Town's 2017 Open Space and Recreation Plan will serve as an effective public process and needs assessment for formulating recommendations and policies.

³⁸ 2020 Park, Recreation, Open Space and Greenway Guidelines, National Recreation and Park Association.

³⁹ Ibid, p. 49.

The highest needs identified by the Massachusetts Statewide Comprehensive Outdoor Recreation Plan include: hiking trail systems, playgrounds, picnic areas, camping areas and swimming facilities. Throughout the public participation process, a strong desire for better access to open space and recreation areas came up continually. An increase (Town of Chelmsford Open Space and Recreation Plan 2017, page 78) in the number in trails is also in high demand. The SCORP lists the most popular recreation resources, based on public input, as playgrounds, water facilities and athletic fields. The facilities that tend to be reported as lacking the most across the board are teen centers, skate parks and public restrooms. A majority of residents surveyed mentioned that they run, hike, bike and garden on a regular basis. Baseball and softball were not mentioned very frequently as activities residents partake in.

The written survey distributed for the Master Plan showed that in general residents are satisfied with the number of recreational opportunities and facilities available and the amount of open space that has been protected, as shown below. It also showed that respondents felt it was important that the Town continue to protect open space and agricultural lands.

7b. Open Space and Recreation: Please indicate whether you would rate the following services, facilities, and characteristics, as they relate to Chelmsford, as excellent, good, fair or poor.										
	Excellent		Good		Fair		Poor		Unable to Score/ Unfamiliar	
Number of recreational facilities/opportunities	18.3%	185	50.1%	505	20.9%	211	5.0%	50	5.8%	58
Mix/type of recreational facilities and programs	11.3%	114	46.0%	465	25.4%	256	5.3%	53	12.1%	122
Amount of open space protected	14.1%	142	39.9%	402	26.4%	266	11.3%	114	8.3%	84
Accessibility of facilities and programs	10.0%	101	48.5%	489	19.9%	201	4.5%	45	17.1%	172

11. On a scale of 1 to 5, how important is it for the Town to establish any of the following as priorities?										
	1-Not important		2-Slightly important		3-Moderately important		4-Very Important		5-Extremely Important	
Encouraging activities based on agricultural, open space, and recreational assets and attractions	2.8%	28	8.9%	89	26.8%	267	33.0%	329	28.5%	284
Acquiring additional open space	7.8%	77	14.9%	148	24.9%	247	26.6%	264	26.0%	258
Protecting additional agricultural lands	5.2%	51	12.2%	121	23.1%	229	28.0%	277	31.6%	313
Adding new recreation facilities or programs	5.1%	51	15.0%	149	34.3%	341	28.0%	278	17.5%	174

ISSUES AND OPPORTUNITIES

While the Town has successfully preserved open space, there are still large tracts of land that remain unprotected. Over the past decade, the Town has utilized Community Preservation funds as the sole source for open space acquisitions, with most acquisitions being bonded over a ten-year period. Land has only been conserved through Open Space residential developments under the Town's zoning bylaw. The Open Space Development bylaw was updated at the 2019 Town meeting to reduce 10 acre minimum down to 5 acres thus targeting some of the remaining large developable tracts.

The current economic challenges created as a result of the pandemic and eventual limitations on Community Preservation funds could make future acquisitions more challenging. Alternative methods of land conservation could be pursued. Conservation restrictions and easements can limit the future land development although the land continues to be owned and operated by a private owner. If such restrictions are in perpetuity, they can provide as much protection as outright acquisition at a lesser cost, while providing flexibility in meeting the needs of the landowners and would allow the property to stay on the tax rolls. In addition, grant funding is available from various state programs, such as the Agricultural Preservation Restriction program, which pays farmland owners the difference between the "fair market value" and the "agricultural value" of their farms in exchange for a permanent deed restriction preventing any use of the property that will negatively impact its future agricultural viability.

In the future, the Town could work with an interested landowner to create a limited development project. In a limited development project, a conservation group (usually a nonprofit but sometimes a governmental body) purchases a piece of land they are interested in conserving. A portion of the site that is less important for conservation purposes is carved off and developed, and the proceeds from the development are used to repay the money borrowed for the land purchase or used to fund future conservation efforts.

There are many parcels of open space owned by the Town that are not permanently protected through a deed restriction or other legally binding mechanism. Such parcels include the golf course and many of the school properties. Future attention should be paid to protecting some of these areas, as well as agricultural lands, historic properties and resources, forested lands, riverfront areas, water resources, and wildlife habitat.

The Town Manager has created a formal process of providing notifications and seeking feedback from the Conservation Commission, Planning Board and Community Preservation Committee for Chapter 61 lands where the Town could exercise its right of first refusal. However, there is no formal process for notifying other parties that may be interested in the property should the Town choose not to exercise its right-of-first-refusal. The Town should periodically review its inventory of Chapter 61 parcels to determine appropriate measures for conserving these parcels

should they become available in the future. Over the last decade, the Town Manager has worked directly with the Conservation Agent / Commission to review an itemized parcel list and has identified dozens of parcels comprising hundreds of acres that have been formally voted by Town Meeting to be conveyed to the Conservation Commission. This effort has increased the Conservation Commission's holdings from 800 acres to approximately 1,000 acres.

The Town's 2017 Open Space and Recreation Plan identified a need for improving linkages between areas of open space. This need was confirmed through the input process for this Master Plan Update. Much of the Town's open space and recreation land is fragmented and isolated. Establishing linkages and connections between these parcels should be a priority for the Town. Acquisition and protection of parcels adjacent to existing conservation and recreation lands is critical. As the Town updates its Open Space and Recreation Plan, particular attention should be paid to identifying possible trail systems and linkages between parcels of open space, and on identifying missing links in the existing network of trails. Continued expansion of the Town's trail network, and efforts to make these trails more accessible to residents is important. The following steps should be initiated:

- Examine and map the existing trail and pedestrian circulation system;
- Identify the missing links and pursue opportunities for easements to provide linkages, where appropriate and practical;
- Distribute Town-wide trail maps to increase public knowledge and awareness, as well as use of the Town's trails and open spaces;
- As part of the development review process, seek permanent trail easements, parking, and linkages, where appropriate; and
- Coordinate trail planning and maintenance efforts with bordering communities to ensure regional connectivity.

Over the past decade, efforts in this area have been primarily focused on improving and enhancing access and accessibility to existing open space areas.

While Chelmsford residents support protecting open space, the Town recognizes that it needs to focus on appropriately managing the properties that it already owns. Sometimes communities view open space acquisition as an end objective that requires no further action or investment. However, the absence of a management plan leaves open space properties vulnerable to vandalism and abuse, vegetation overgrowth, and eventually, a loss of public access. The best way to protect open space is to assure that residents use it properly, and, to encourage public use the property must be maintained. While specific management plans have not been undertaken, the Conservation Commission and the COSS have enhanced their management efforts resulting in significantly fewer issues. The Conservation Commission has updated its regulations regarding the use of the properties it controls. Several Select Board controlled properties are now subject to signed MOUs, with the COSS providing property maintenance.

An option for more detailed maintenance plans for each reservation would be for the Conservation Commission to hire consultants to produce plans on how to manage the reservations for future use and enjoyment. These plans would: establish level of service; identify and prioritize maintenance; and initiate improvements like accessibility, education, invasive species removal, and wildlife habitat preservation. This could be done through funding from the Community Preservation Act. These plans should follow the goals established in the 2017 Open Space and Recreation Plan.

The Chelmsford Open Space Stewardship (COSS) provides an invaluable service to the community through their diligent efforts to maintain certain open space and conservation properties. All of its funds are from private contributions. While the use of volunteers is extremely important and helpful, over the long-term the Town needs to develop a long-term management plan to ensure the continued viability and stability of the COSS program. Several years ago, Town Meeting voted to provide dedicated funding to COSS in the amount of \$3,000 to be primarily used to cover costs related to fuel expenses.

Allowing private entities to manage more Conservation Reservations is an option that would bring more use and interest to the areas, while helping to monitor the reservations for cleanliness. The partnership between the Conservation Commission and NEMBA and the CYSA at Russell Mill Reservation has made the reservation one of the more popular ones, with very few issues.

Open Space initiatives and activities over the next decade will likely be focused on the following priorities:

- Continued enhancement to property management and maintenance of existing reservations via dedicated budgets
- Implementing a re-use plan for the Warren Pohl farm.
- Seeking to acquire priority properties with particular focus on preserving more agricultural opportunities,

As discussed in the Land Use and Zoning section of this document, the Town should continue to review its bylaw and regulations, zoning and otherwise, with an eye toward better accommodating the needs of agricultural enterprises, and particularly of small parcel farming. Such revisions would serve to promote the preservation of farmland, allow agricultural enterprises to remain viable, provide sources of locally grown foods, and enhance the agricultural economy in Chelmsford. To this end the Committee recommends that:

1. The Town continue to look for opportunities to protect agriculture through the acquisition of agricultural land, with appropriate agricultural restrictions applied, that it can lease out, and through the application of Chapter 61A.
2. The Town support and help maintain regular Farmers' Markets so that the residents of the Town have a source of fresh good locally grown foods, and local farmers have a ready market.
3. The Town make available more of its land holdings for agricultural leases, under terms that support farming. To be practical for local farmers to make needed improvements to these lands, leases for these areas must be multi-year and flexible. There are several approaches to creating these leases, including long term, and "rolling renewal."
4. The Town continue to encourage non-commercial agriculture as well, through mechanisms such as small plots at the Community Gardens.
5. The Town encourage and support cultural activities that emphasize our agricultural heritage, such as the annual Farm Fair and the tractors in the 4th of July parade

A need for additional recreational opportunities for adults has been expressed by residents. In addition, a need for additional soccer fields and track facilities, as well as another Skateboard Park has been identified. Accommodating conservation and recreation interests while maintaining a balance between protecting land for conservation purposes and developing additional recreation facilities continues to be a subject of debate. Current field demand does not allow sufficient time for rest and recovery of the turf or allow for rotation of the fields. There has been no further action taken related to the need for additional soccer fields. Some field maintenance is performed by volunteer youth sports organizations. While this assistance is helpful and appreciated, it does not allow for a coordinated maintenance and management effort.

The High School track also needs to be resurfaced/reconstructed. In 2020, a new pickle ball court was constructed at Varney Park. Consideration has been given to creating a bocci ball court and an age-friendly exercise fitness circuit. Moving forward this effort will likely be associated with the Town's Age Friendly initiatives.

Recreation initiatives and activities over the next decade will likely be focused on the following priorities:

- Phase III-replace Varney Playground and upgrades to baseball field to include improved field drainage and potential synthetic infield
- Chelmsford High School-Replace tennis/basketball/Hockey Complex, resurface/replace track and playing field
- Southwell Field-softball fields and playground replacement
- Future for the football field complex – potential to convert football complex to baseball and softball fields with lights and synthetic fields.
- Consider improvements to Community Education Summer Camp program.

- Post educational signage in areas of wildlife and water protection.

The Committee also recommends that the Director of Recreation position be re-instated.

A number of Age Friendly needs and recommendations were discussed during the master planning process. The following is recommended to meet the needs of older adults:

- Install age appropriate fitness equipment, benches, shelters, & walking trails. Encourage modifications that address specific mobility and logistical needs. Use Wichita, Kansas' [Grandparent Park](#) as a guide.
- Promote and create opportunities for seniors to use public parks and playgrounds. Market programs for older adults to “walk in the park” or “coffee in the park. Brainstorm with Senior Center kitchen staff to create opportunities for outdoor events. Senior Center kitchen staff to create opportunities for outdoor events. Strengthen connection between Senior Center and Varney Park for dedicated age-friendly activities (e.g., bocce court, fitness circuit)

The Conservation Commission initiated an Open Space Advisory Subcommittee but has since abandoned it. The Town Manager, working with various departments, such as DPW and the Schools, has an internal process to review, identify and prioritize recreation needs. These facilities include the high school track, Varney baseball field, Roberts Field, as well as examining the long-term future of the football complex. An Open Space and Recreation Committee (OSRC) should be formed in order to properly monitor the conditions of recreation facilities throughout town. The Committee would keep a current data base of all town owned recreation facilities and prioritize the most critical maintenance needed at each location. Coordination between the DPW Public Facilities, Town Manager, and the School Department, along with state and local funding, would then be needed to improve these facilities for the community.

In summary, the Master Planning process has shown that the Town needs to maintain and care for the land and facilities it already owns, gradually acquiring additional holdings to connect open space where possible, and use its regulatory powers to assure high-quality open space in development and redevelopment projects. A comprehensive open space system requires criteria for evaluating open space parcels, zoning and non-zoning bylaws that can help meet open space goals, and dedicated funding to acquire, improve and manage these lands.

RECOMMENDATIONS

8.1 Continue to address ADA/accessibility issues for town-owned open space and recreation properties as resources become available.

8.2 Encourage stewardship and increase public education on recreation and conservation resources, programs and facilities available to residents.

8.3 Continue to pursue grants for implementing capital improvement projects at recreational facilities, including school athletic fields, parks, and playgrounds. Future initiatives will likely focus on the High School, Varney Playground, Southwell Field, and the Community ED Summer Camp program.

8.4 Seek to acquire priority properties benefitting agricultural preservation.

8.5 Support and maintain a regular Farmers' Market so that residents have access to locally grown fresh food and farmers have a readily available market for their crops and products.

8.6 Encourage and support non-commercial agriculture through community gardens.

8.7 Gauge the level of use of open space and recreation properties and facilities, and evaluate maintenance needs. Develop management and maintenance plans based on the outcome of the assessment.

8.8 Form an Open Space and Recreation Committee.

8.9 Continue to monitor potential recreation parcels and prioritize those that enhance connectivity to existing recreation and conservation properties.

8.10 Review and revise bylaws and regulations to better accommodate agricultural enterprises and small lot farming. Seek opportunities to acquire agricultural lands that can be leased through the application of Chapter 61A. Lease additional town-owned lands for agricultural purposes.

8.11 Promote and create opportunities for seniors to use public parks and playgrounds. Market programs for older adults to “walk in the park” or “coffee in the park”. Brainstorm with Senior Center kitchen staff to create opportunities for outdoor events. Strengthen the connection between Senior Center and Varney Park for dedicated age-friendly activities (e.g. bocce court, fitness circuit).

8.12 Hire a Recreation Director.

8.13 Implement a reuse plan for the Warren Pohl Farm.

8.14 Install age appropriate fitness equipment, benches, shelters, and walking trails. Encourage modifications that address specific mobility and logistical needs. Use Wichita, Kansas Grandparent Park as a guide.

IX. FACILITIES AND SERVICES

INTRODUCTION

The Facilities and Services Element of this Master Plan focuses mainly on the capacity of local government to finance and deliver services. Chelmsford has not grown significantly in recent years, and there is no indication that its growth rate will increase in the foreseeable future. Its capital facility needs have less to do with serving more people than with addressing deferred maintenance and renovating or replacing outgrown or obsolete buildings. Similarly, the town's operating challenges have little to do with population growth. Rather, the challenges involve paying for typical desired local services in a state with fluctuating aid policies, a cap on property taxes and no authority for cities and towns to collect impact fees.

Chelmsford's legislative body is a representative town meeting consisting of one hundred and sixty-two members elected to meet, deliberate, act and vote in the exercise of the corporate powers of the town. Eighteen members are elected from each of the town's nine voting precincts. The Select Board is the chief executive office in the Town. The Town Manager is the primary officer responsible for implementation of policy directives and guidelines adopted by the Select Board. The daily administration of the affairs of the Town is the exclusive responsibility of the Town Manager.

Goal Statement: Provide high quality, cost effective and accessible services and facilities to meet the changing needs of the town's residents and businesses.

- ***Provide community services that meet the needs of all residents regardless of income, age, gender or ability. Such services include education, public safety, public health, town administration, library services, recreation and social services.***
- ***Maintain, enhance and improve the town's infrastructure and facilities in a manner consistent with best practices and using available technology.***
- ***Use a comprehensive approach to asset management by maintaining an inventory of municipal property, establishing priorities and long-range plans for addressing public facility projects and maintenance, and by periodically re-evaluating the town's building and land needs..***
- ***Coordinate the provision of community facilities and services in an efficient manner by planning and budgeting for large projects based on anticipated community need.***

Chelmsford's local government is complex with a total operating budget of \$137,966,578 in FY 2021. The major sources of funding for the budget include \$109,538,862 from the property tax levy, \$13,966,102 in State Aid, and \$8,942,607 in local receipts. The FY 2021 budget maintains

a level service of government operations, compared to FY 2020, in that there are no additional positions funded.

Chelmsford offers three options for educating its student population: Chelmsford Public Schools (grades K-12), Nashoba Valley Technical High School (specialized vocational education for grades 9-12), and access to public charter schools, which is funded in the non-appropriated category of the town's budget. The total expenditure for all three systems in FY 2021 is projected at \$67.06 million, which represents 48.6% of the total budget. The School budget in FY 2021 continues to be funded above the State Net School Spending Requirements, which is an indication of the community's strong commitment to education. In fact, during the public visioning sessions for the Master Plan, the quality of the school system was often cited as one of the community's greatest strengths.

Public Safety (Police, Fire, Inspections and Enforcement, Animal Control, and Emergency Management) is the second largest functional component of the Town's budget, representing approximately 10.3% of total expenditures in FY 2021. In addition to public safety operating expenses, the FY 2021 budget provides \$135,000 for the replacement of three police patrol vehicles.

To meet the ongoing capital expenditure needs of the Town, the FY 2021 budget includes a level-funded \$3.45 million capital improvement program. The Town continually maintains and updates a five-year capital improvement plan. Funds are being expended to upgrade the high school security system, renovate the auditorium at McCarthy Middle School, renovate the kitchen at Parker Middle School, upgrade the Public Safety radio system, renovate the Senior Center kitchen, construct sidewalks, and improve roadways.

Prudent use of debt financing is an important part of the Town's overall fiscal planning. The primary objective of any debt management approach is to borrow at the most favorable rate possible. Attainment of this objective requires clear policies in terms of the reasons and rationale for borrowing, calculating the appropriate term for repayment, and appropriately planning for the repayment of debt-financed projects at the most favorable rate possible.

A rapid repayment schedule ensures cost savings to the community and seeks to avoid burdening future generations with large debt loads. Debt is typically retired in five to ten years, depending on the expected useful life of the capital asset being financed. However, new and renovated building projects and the sewer project are planned to have a twenty year repayment term. All debt is issued as general obligation debt. This means that the full faith and credit of the Town is pledged to the bondholder. Debt issued on behalf of the Town's sewer construction project approved prior to 2003 is exempt from Proposition 2 ½, as is debt issued on behalf of the secondary school construction and renovation project. Sewer construction debt approved since

2003 is paid with sewer betterment revenue. Repayment of all other issued debt must be funded within the levy limit.

The Town's credit rating is AA+ from Standard & Poor's with a Stable Outlook. Standard & Poor's rating reflects the Town's low overall debt burden, diverse tax base, and strong financial management practices. As with a personal credit rating, the Town's credit rating is a statement of its overall fiscal health as a government and as a community. The benefit of a strong credit rating is realized in lower interest costs on the Town's long-term debt issues.

INTRODUCTION TO TOWN FACILITIES

This subsection of the Facilities and Service chapter will present existing conditions for municipal buildings and recreational facilities, discuss management and operations, outline issues and opportunities and identify a series of recommendations to address the future facility needs of the community.

Municipal Buildings

The Town of Chelmsford maintains twenty-eight (28) buildings. The following information is provided for each building: general site and building characteristics, existing operations, deficiencies, costs estimates and schedules for capital planning expenditures. The goal of ongoing and preventative maintenance is to keep the Town assets operating to serve the needs of the public. The department continually assesses opportunities at each location and has paid particular attention to ADA and energy initiatives across the facilities portfolio.

Town Office Buildings

- **Chelmsford Town Office Building** - Originally constructed as a high school in 1916, the building was converted to Town Offices in 1981. Located on a 9- acre site at 50 Billerica Road, this structure is a 3-story brick/masonry building of 30,912 sq. ft. with a rubber seam roof. The building supports the Town of Chelmsford's administration, financial operations, building inspection departments, and is the primary facility for town boards and committee meetings. Water is supplied from the Center Water District, sanitary drainage via town sewer; electrical power is supplied by National Grid and the building is heated with natural gas. Recent upgrades to the building include: Fire Suppression System (2014--\$300,000); Gym and Restroom Renovation (2017--\$154,224); New roof (2020--\$425,000). Future Proposed Capital Projects include: Vault upgrade (2022-2023--\$199,000); Elevator Replacement (2023--\$350,000).
- **Center Town Hall** - Located on a 33,105 sq. ft. site at 1A North Road, is a 1.5-story wooden frame clapboard building of 7,451 sq. ft. with an asphalt shingle roof. Built in 1879, it was renovated in 1937, 1985, and again between 7/1/2011 – 9/1/2012 a major renovation took place in the amount of \$2.56M funded by the Community Preservation Committee. Its use today is as a Community Cultural & Arts Center. There is 8,000 sq. ft. of parking behind and to the east of the building containing 47-50 parking spaces. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical

power is supplied by National Grid and the building is heated by natural gas. The basement has a large area for meetings and programs, along with a kitchen. The first floor is utilized as rental space for artist galleries. The third floor is utilized for functions and performing arts. Center Town Hall is situated in the Chelmsford Historic District and is also a National Historic Site. There are preservation restrictions on the building that limit interior and exterior renovation activity. The building is ADA accessible via a lift.

- **North Town Hall** - Located on a 9,160 sq. ft. site at 31 Princeton Street, is a 2-story 6,636 sq. ft. wood frame/vinyl sided building with an asphalt shingle roof. Originally constructed in 1853, this building had been vacant for nearly 20 years. Beginning on 7/1/2011 through 9/1/2012 a major renovation took place in the amount of \$2.85M funded by the Community Preservation Committee. Water is supplied from the North Water District, sanitary drainage via town sewer and electrical power is supplied by National Grid and the building is heated with natural gas.

Public Safety

- **Police Station** -- Built in 2003 and located on a 4.3-acre site at 2 Old North Road, is a 2-story brick/masonry building of 20,906 Sq. ft. with an asphalt shingle roof and 78 parking spaces. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid. The Town's centralized fueling facility is located at this site. The building also contains a community meeting room that seats 70 people. Recent upgrades to building include: Blower Motor Repair (2020--\$7,090); Fire Alarm System Upgrade (2018--\$14,205); Garage HVAC install (2016--\$6,336); Police Surveillance System (2016--\$90,000); replace heat pump split system (2014--\$9,196). Future Proposed Capital Projects include: Repave Rear Parking Lot (2023--\$75,000); Replace Roof (2024--\$196,900)
- **Center Fire Station** - The station was relocated from 7 North to 50 Billerica Road in 2014. A new 15,500 square foot building was added on to the Town Offices in 2014 which includes 5 bays, sleeping quarters, HVAC, plumbing, electrical, a fire suppression system and new elevator. This building is a 2-story brick/masonry building with a PVC Membrane flat roof. In addition to this building a 3,800 square foot training room was added to the Town Offices for use by the Fire Department staff. Total cost for this project was \$8,131,440.
- **North Fire Station** - Built in 1972 and located on a 40,946 sq. ft. site at 35 Princeton Boulevard, it is a 1 story brick/masonry building of 3,740 Sq. ft. with rubber membrane roof. The facility has parking for 15 vehicles. Water is supplied from the North Water District, sanitary drainage via town sewer; electrical power is supplied by National Grid and the building is heated by natural gas. As part of the North Town hall renovation project (see above), 40 new parking spaces were added during the construction of that site. Future Capital Project: Major renovation (\$3,400,000) of the Fire Station to include: demolition of existing structure, apparatus bay renovation and installation of modular building. Breakdown as follows: \$2,545,100 (modular building design, engineering, management and site service); \$100,000 (renovation of existing

structure and selective demo of apparatus bay); \$300,000 (Renovation of existing apparatus bay/garage); \$197,600 (temporary provisions of modular living quarters); \$257,300 (furnishings, fire alarm system and contingency).

- **South Fire Station --** Built in 1966 and located on an 8,392 sq. ft. site at 295 Acton Road, it is a 1-story brick/masonry building of 2,640 sq. ft. with an asphalt shingle roof. The facility has parking for 6 vehicles. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and the building is heated by natural gas. This station is not fully ADA accessible. Recent upgrades to building include: roof replacement (2015--\$34,821).
- **East Fire Station -** Built in 1976 and located on a 2.5- acre site at 115 Riverneck Road, it is a 1-story brick/masonry building of 4,226 sq. ft. with a rubber roof. The facility has parking for 8 vehicles. Water is supplied from the East Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and the building is heated by natural gas. This station is not fully ADA accessible. Upgrades to the building include a new roof in FY2018 in the amount of \$88,441 and a new hose tower in FY2012 in the amount of \$56,000.
- **West Fire Station -** Built in 1970 and Located on a 21-acre site at 260 Old Westford Road, is a 1-story brick/masonry building of 2,796 sq. ft. with a rubber roof. The facility has parking for 5 vehicles. There is also a 1,344 sq. ft. maintenance garage used by Emergency Management located on the site with a 672 sq. ft. canopy used for storage. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heat by gas. This station is not fully ADA accessible.

Department of Public Works

- Construction of the new DPW facility was completed in June 2013. Total cost of the project was \$2,600,000. All Divisions (Highway, Sewer, Parks, Stormwater, and Engineering) are located and operate from this Building located at 9 Alpha Road. The Facilities Division continues to be located and operate from 190 Richardson Road (behind the High School). The new facility includes: office space, wash bays, lunch room, conference room and fleet storage. Recent updates to this facility include: Mechanics Bay Addition (2019--\$1,872,000); Office space for the Stormwater/Engineering Division staff; file room; training room; gym; snow storm sleeping quarters (to be used during snow storms)—2019 (\$750,000); wash bay and welding bay (2020--\$70,000). Future Proposed Capital Projects include: Fueling System (2025--\$1,300,000).

Libraries

- **Adams Library -** Originally constructed in 1894, significant renovations and an addition were completed in 1998. Located on a 33,915 sq. ft. site at 25 Boston Road, is a 2 story 30,182 sq. ft. brick and masonry building with a slate and asphalt shingle roof. This property offers 74 parking spaces in front and on the side of the building. Additional on-site parking is necessary and is evident based upon patrons parking across the street in

the CVS parking lot at busy times. The library serves the community with two meeting rooms; a large room that seats 75 and small room that seats 12. Those rooms are heavily booked during library hours. Recent updates include a Storage Building (FY2012 in the amount of \$100,000; AHU Controller upgrade (FY2013) in the amount of 65,000; Carpet Replacement (FY2019 and FY2020) in the amount of \$200,000. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by natural gas. Future Proposed Capital Projects include: Retaining wall (2022--\$70,000).

- **Dutton House** – The Dutton House was demolished in 2015 and replaced by the Carriage House in 2016 (\$83,400). This new building is used for storage by the Adams Library.
- **McKay Library** - Constructed in 1900 and located on a 11,727 sq. ft. lot at 43 Newfield Street is a 2- story 4,244 sq. ft. wood frame building/clapboard building with an asphalt shingle roof. The facility has parking for 20 vehicles. Water is supplied from the North Chelmsford Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by natural gas. Recent updates include: a new roof (FY2018) in the amount of \$38,402.

Public Schools

- **Chelmsford High School** - Originally constructed in 1974, and partially updated in 2007, and located on a 5249 acre lot at 190 Richardson Road is a 3 story 285,882 sq. ft. brick/masonry building serving children from grades 9 – 12. The school has a 1,000 seat Performing Arts Center with a full fly loft and an orchestra pit. Paved parking and drive area is 220,000 sq. ft. with 605 parking spaces. Other uses of the lot: Shed Frame 1 - 2,400 sq. ft., and Shed Frame 2 - 384 sq. ft. maintenance buildings. Water is supplied from the North Water District, sanitary drainage is via town sewer, electrical power provided by National Grid and heated by gas. Recent updates to the building include the following: Ceiling Replacement--Cafeteria 1 and 2 (2011--\$100,000); Doors and Hardware Replacement (2012--\$163,200); Gymnasium Upgrade (2012--\$350,000); Stadium Lighting (2012--\$55,000); Locker Room Renovation (2012--\$95,000); Walk-In Cooler Replacement (2015--\$75,000); Restroom Renovations (2015--\$815,000); Accordion Walls (2018--\$65,000); Lecture Hall Upgrade (2018--\$111,041); Parking Lot and Curbs (2019 and 2021--\$1,612,351); Basketball/Tennis Court Crack sealing--\$50,000). MSBA projects total \$19,176,684 (see attached breakdown of projects). Future Proposed Capital Projects: Boiler replacement (\$300,000); Renovate/Replace tennis courts (\$1,200,000); Replace elevator (\$159,600); Renovate art rooms (\$450,000); Kitchen renovation (\$641,355; Ductwork diffusers (\$53,130); Art wing ventilators (\$57,684); Renovate stairwells (\$85,000); Replace clock system (\$348,165); Flooring in locker room (\$313,647); Electrical switchgear replacement (\$303,600); Code compliant cabinets, countertops, shelving and classroom sinks (\$2,349,864); Pressure sensors and modulate the heating system (\$30,360).

- McCarthy Middle School** - Originally constructed in 1957 and located on a 41.86 acre site at 250 North Road is a 2 story 147,954 sq. ft. brick/masonry building serving children from grades 5 – 8 with an addition in 1962. The roof, installed in 2003, is flat with tar and gravel over 1/3 of the building and Sarnafil over the remaining 2/3, installed in 2005. Paved parking and drive area is 165,369 sq. ft. with 266 parking spaces. Water is supplied from the North Water District, sanitary drainage is via town sewer, electrical power provided by National Grid, and heated by gas. Recent upgrades include the following: Kitchen Floor Tile Replacement (2011--\$100,000); Furniture (2012--\$49,000); Parking Lot, Curbs, and Sidewalk (2011-2012--\$370,000); Locker Room Renovation (2013--\$52,000); Plumbing Upgrades (2013--\$451,375); Latex/Rubberized Track (2013--\$597,670); Doors & Hardware (2018--\$195,000). MSBA projects total \$7,692,046 (see attached breakdown of projects). Future proposed Capital Projects: Elevator replacement (\$155,610); Kitchen renovation (\$641,355); Replace RTU on modular (\$25,000); Renovate stairwells (\$85,000); Renovate/replace tennis courts (\$245,000); Renovate entryway (\$450,000); LED fixtures (\$34,155); RTUs on modular (\$37,950); Antenna system installation (\$75,900); Kitchen floor installation (\$84,856); Replace gym curtain wall windows (\$236,640); Library carpet replacement (\$79,923); Install code compliant countertops, shelving, and classroom sinks (\$1,024,650)
- Parker Middle School** - Originally constructed in 1965 and located on a 15.25 acre site at 75 Graniteville Road is a 2 - story 100,400 sq. ft. brick/masonry building and a 5,000 sq. ft. brick/masonry library addition that serves children from grades 5 – 8. Paved parking and drive area is 120,350 sq. ft. with 208 parking spaces. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Chelmsford Tele-media is located in this school. Recent upgrades to the building are as follows: Floor Tile Replacement (2011--\$145,000); Doors and Hardware (2012--\$110,200); Furniture (2012--\$49,000); Locker Room Renovation (2013--\$42,000); Gymnasium Upgrade (2013--\$119,000); Roof Replacement (2015--\$157,200); and HVAC Unit (2015--\$115,000); Walk-In Cooler Replacement (2015--\$40,000); Restroom Renovation (2015--\$378,000); Parking Lot & Curbing (2019--\$190,000); Kitchen Code Compliance (2021--\$122,928). MSBA Projects total \$4,131,270 (see attached breakdown of projects). Future Proposed Capital Projects: Kitchen remodel (\$641,355); Replace elevator lift (\$110,000); Code compliant stair treads (\$80,000); Replace RTUs on modular (\$75,000); Replace elevator (\$79,800); Roof mounted energy recovery unit (\$75,900); Renovate stairwells (\$80,000); Replace modular (\$75,900); Install high-efficiency water heater (\$45,540); Replace library carpeting (\$77,873); Replace clock system (\$143,641); Replace security system (\$766,086); Replace floor tile (\$269,597).
- Byam Elementary School** - Originally constructed in 1970 and located on a 26-acre site at 25 Maple Road, is a 2-story 60,441 sq. ft. brick/masonry building serving children from grades 1 through 4. The roof is flat. Paved parking and drive area is 60,000 sq. ft. with 69 parking spaces. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

Recent updates to the building include: Gymnasium Upgrade (\$1,133,792); Restroom Renovation (2017--\$345,000); Modular Classrooms (2017--\$1,425,462); Kitchen/Cafeteria Upgrade (2018--\$75,000); Kitchen Upgrade (2021--\$62,000). Future Proposed Capital Projects: Security system upgrade (\$139,358); Door Hardware (\$199,052); Code Compliant Rubber Stair Treads (\$14,231); Replace stage flooring (\$31,499); Replace AC system (\$45,540); Install mechanical ventilation in the library and Special Ed rooms (\$227,700); Code compliant cabinets, countertops, shelving and classroom sinks (\$281,741); Replace clock system (\$45,540); Install high-efficiency hot water heater (\$53,130); Replace security system (\$379,500).

- **Center Elementary School** - Originally constructed in 1960 and located on a 6 acre site at 84 Billerica Road, is a 1 story 55, 562 sq. ft. brick/masonry building serving children from grades 1- 4, this building was taken off-line in the 1980's and a full renovation was complete on back on line in 1999. The roof, installed in 1999, is asphalt shingle and rubber membrane. Paved parking and drive area is 20,000 sq. ft. with 66 parking spaces. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Water is supplied from the North Water District, sanitary drainage is via town sewer, electrical power provided by National Grid and heated by gas. Upgrades to building are: Boiler Replacement (2013--\$93,694; and Roof Replacement (2013--\$143,800); Modular classrooms (2017--\$950,308); Carpet/Tile Replacement (2018--\$250,000). Future Proposed Capital Projects: Security system upgrade (\$174,735); Gymnasium flooring (\$31,726); Entryway heater replacement (\$37,950); Bathroom partitions (\$30,360); Install high efficiency hot water heater (\$27,324); Plumbing replacement (\$30,360); Replace gym staging floor (\$31,119); Replace security system (\$341,550).

- **Harrington Elementary School** - The Charles D. Harrington Elementary School was originally constructed in 1968 and located on a 30 acre site at 120 Richardson Road is a 2 story 60,441 sq. ft. brick/masonry building serving children from grades 1- 4. The roof, installed in 2004 is Sarnafil. Paved parking and drive area is 75,454 sq. ft. with 50 parking spaces. Upgrades to the building are: Parking Lot, Sidewalks, Curbing (2011--\$150,000); Gymnasium Upgrade (2013--\$44,250); Modular classrooms (2017--\$1,425,462); Plumbing Upgrade (2018--\$358,000); Parking Lot (2020--\$205,000); Kitchen Upgrades (2021--\$62,000). Future Proposed Capital Projects: Security system upgrade (\$143,031); Door Hardware replacement (\$199,052); Install communication cables in raceway (\$91,080); Stair tread toppings (\$28,463); Install high-efficiency AC system (\$45,540); Install code compliant flooring in the kitchen (\$71,726); Alter stormwater discharge (\$75,900); Replace security system (\$379,500); Replace clock system (\$45,540); High efficiency water heater (\$53,130); Install ventilation into the admin, library and special education rooms (\$227,700); Install code compliant cabinets, countertops, shelving and classroom sinks (\$262,310).

- **South Row Elementary School** - Originally constructed in 1968 and located on a 13-acre site at 250 Boston Road is a 1 story 42,500 sq. ft. brick/masonry building serving children from grades 1- 4. The roof, installed in 2002, is flat covered with tar and gravel. Paved parking and drive area is 61,565 sq. ft. with 85 parking spaces. Water is supplied

from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid, and heated by gas. Upgrades to the building are: Main Entrance Canopy (201--\$38,000); and Plumbing Upgrades (2012--255,441); Doors & Hardware (2017--\$180,311); Modular classrooms (2017--\$1,425,462); Kitchen Upgrades (2021--\$62,000); Roof (2021--\$400,000). Future Proposed Capital Projects: Kitchen renovation (\$75,900); Security systems upgrade (\$141,634); Gymnasium walls and backboards (\$72,108); Replace pneumatic control system (\$321,816); Ceiling replacement (\$422,012); Stage flooring (\$33,206); Shelving and door replacement (\$44,022); Replace RTU (\$53,130); Install code compliant cabinets, countertops, shelving and classroom sinks (\$262,310).

- **Chelmsford Community Education Center (Westlands Elementary School) -** Originally constructed in 1968 and located on a 6 acre site at 170 Dalton Road, is a 2 story 37,100 sq. ft. brick/masonry building. The roof, installed in 2003 is Sarnifil. Paved parking and drive area is 45,000 sq. ft. with 57 parking spaces. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Upgrades to the building are: Parking Lots, Sidewalks, Curbing (2011--\$150,000). Future Proposed Capital Projects: Door knob and closure hardware (\$235,484); Kitchen renovation (\$227,700); Bathroom renovation (\$455,400); Indoor air handling unit replacement (\$189,750); Elevator replacement (\$155,610); Code compliant storage in kitchen (\$30,360); Cafeteria stage floor replacement (\$51,233); High efficiency water heater (\$45,540); Replace clock system (\$56,318); Piping replacement (\$227,700); Replace security system (\$253,430); Install code compliant cabinets, countertops, shelving and classroom sinks (\$237,415).

- **Chelmsford School Administration Building -** Constructed in 1968 and located on a 1.74 acre site at 230 North Road is a 1 story 10,192 sq. ft. brick/masonry building. The roof is flat covered with EDPM membrane. Paved parking and drive area is 68,000 sq. ft. with 60 parking spaces. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Building deficiencies are replace roof estimated at \$121,800 and scheduled for 2015. Upgrades to the building are: Roof Replacement (2015--\$157,200; HVAC Unit (2015--\$115,000).

- **Chelmsford Senior Center -** Constructed in 1989 and located on a 3 acre site at 75 Groton Road is a 2 story 20,399 sq. ft. wood frame/vinyl sided building with asphalt-shingled roof. Paved parking and drive area is 43,000 sq. ft. with 110 parking spaces. The building has 3 meeting rooms, meeting room 1 seats 45 and meeting rooms 2 & 3 seats 25 each. The facility also has a main dining area that seats 70 people. This center is fully ADA accessible. This facility also serves as an Emergency Shelter. Water is supplied from the North Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Upgrades to the building are: WiFi Café (2016--\$80,058); Fitness Room (2016--\$156,385); Dining Room Freezers (2017--\$81,290); Dining Room Chairs (2018--\$46,122); Kitchen Renovation (2021--\$244,758); Roof Replacement (2019--\$103,970). Future Proposed Capital Projects: Dining Room Renovation (2022--\$85,300); Replace Elevator (2022--\$240,000); Repave Parking Log

(2023--\$316,031); Bathroom upgrades (2024--\$35,750); Reception Area Upgrades (2025--\$118,694).

Town Recreation Facilities and Fields

- **Chelmsford Country Club** - Constructed in 1963 and located on a 32 acre site at 66 Park Road is a 9 hole golf course including a 2 story 5,896 sq. ft. wood frame/clapboard clubhouse. The roof is gabled/hip with asphalt shingles. Paved parking and drive area is 20,000 sq. ft. with 65 parking spaces. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Upgrade to the grounds include a safety net (2011--\$40,000); Addition construction (2013--\$215,395); Regrade 1st Tee (2014--\$6,222); Regrade 9th tee and green (2020--\$60,000).
- **Chelmsford Forum** - Constructed in 1964 and located on a 7 acre site in Billerica at 2 Brick Kiln Road, is a 38,946 sq. ft. steel frame/concrete block ice rink building. The roof is gable with a membrane covering updated in late 2009. Paved parking and drive area is 115,824 sq. ft. with 250 parking spaces. Water is supplied by Billerica, sanitary drainage is septic system, electrical is supplied from National Grid and heated by gas. Upgrades to the building are: Replaced ice slab (2014--\$429,900); Replaced ice rink dashers (2014--\$108,330); Replaced exterior doors (2015--\$68,343); Replaced new electric ice resurfacer (\$135,045); Installed LED lighting (\$58,701); Parking Lot (2017--\$300,000); Structural Repairs (2017--\$55,000). Future proposed project includes completing of the parking lot construction (2021).
- **East Field** - Carlisle Street, with 1.56 acres exclusive for a softball field, a basketball court and Harmony Park playground and 27 parking spaces.
- **Highland Field** - Highland Road, with 1.5 acres exclusive for a soccer field, small play area and 25 parking spaces.
- **McFarlin Field** - Chelmsford Street, with 1.65 acres exclusive for a softball field and 50 parking spaces.
- **Murphy Field** - Mill Road to Raymond Road with 3.4 acres of conservation land for two soccer fields and 100 parking spaces.
- **Roberts Field** - Old Westford Road, with 6 acres of three fields of Youth League size, two used almost exclusively for Minors games and practices, and the other used almost exclusively for Tee Ball; soccer field, Friendship Park playground, skating pond, an open area and 95 parking spaces. New playground installed in 2018 (\$400,000).
- **Southwell Field** - Wotton Street, located on 26 acres with frontage on the Merrimack River, it has three softball fields with lights, walking trail, playground, boat ramp, beach, playground and 150 parking space gravel parking lot. .

- **Strawberry Hills Field** - Jordan Road, located on 1.50 acres with one baseball field of Youth League size, playground and 50 parking spaces.
- **Varney Field & Playground (Ayotte Field)** - Adams/Sherman Street, located on 6.79 acres with frontage along Freeman Lake. Has a single Senior League size baseball field that is used by the Senior Leagues, basketball court, two tennis courts, playground, beach, and 30 parking spaces. Upgrades include: Pickle ball/Tennis Court installed in 2020 (\$89,000).
- **Warren Pohl Property**-Acquired in an effort to preserve and conserve the natural resources and open space in 2020, the 54 acre site on Boston Road includes fields, wooded areas, a stream, a barn, walking trails and added parking. The Town will undertake Future improvements to this property in the short term.
- **Bruce Freeman Rail Trail**- Established in 2009, the trail is maintained by the Town and utilized by the public year round. The entire section of the Rail Trail that runs through Chelmsford was repaired in 2021 in conjunction with a grant from DCR and MassTrails.
- **Pocket Park**- Created in 2020 in collaboration with Blake Funeral Home and the Town, a small Age friendly park was created at 24 Worthen Street.

School Fields

- **Chelmsford High School** - Located at 200 Richardson Road, with 42 acres encompassing one football stadium, an outdoor track, six tennis courts, an outdoor field hockey court, two Senior League size baseball diamonds and two softball/youth size baseball fields, two soccer fields, three basketball courts, one street hockey court and walking and cross country trails. The football field has lights. Upgrades to field include: New chips in the Lion's Den playground and new tire swing (\$6,000).
- **McCarthy Middle School** - Located at 230-250 North Road, with 12 acres encompassing a football field, baseball field, softball field, two soccer fields, six outdoor tennis courts, two outdoor basketball courts, outdoor track, skateboard park and playground.
- **Parker Middle School** - Located at 75 Graniteville Road, with 6 acres encompassing two baseball fields of Youth League size, a playground and open area.
- **Byam Elementary School** - Located at 25 Maple Road with 3.4 acres exclusively for a playground and open area.
- **Center Elementary School** - Located at 84 Billerica Road, with 1.75 acres exclusive for a playground and open field. Upgrades to field include: ADA mats installed in playground (\$2,000) and new swing set hardware (\$3,000).

- **Harrington Elementary School** - Located at 120 Richardson Road, with 3.6 acres encompassing 1 large and 1 small soccer field and a playground.
- **South Row Elementary School** - Located at 250 Boston Road, with 6.2 acres encompassing a softball field, four soccer fields, five outdoor tennis courts, two outdoor basketball courts, and a playground. Upgrades to field include: ADA mats installed in playground (\$2,600).
- **Chelmsford Cultural Center (Westlands Elementary School)** - Located at 170 Dalton Road, with 1.7 acres encompassing a softball field, a playground and the Cynthia Moores Memorial Park. Upgrades include: Playground installation (2019--\$345,000).
- **Playgrounds**- Upgrades at these facilities are ongoing and include equipment replacement and accessibility projects. At the Parker School and ADA ramp was recently added, while ADA playground mats and swing equipment was added at both Center and South Row Schools. Assessment of accessibility requirements will continue at all sites in an effort to create spaces that are accommodating for all Chelmsford residents.
-

MANAGEMENT & OPERATIONS

Public Facilities

The Department of Public Facilities is responsible for the consolidated and centralized management of all public facilities, including Town and School buildings and grounds in a uniform and high quality manner. The Public Facilities Department provides electrical, plumbing, HVAC, carpentry and general maintenance to all Town and School buildings. There are presently 28 buildings consisting of five elementary schools, two middle schools, Chelmsford High School, the School Administration building, two Town Libraries, five Fire Stations, Police Station, two Town Halls and other support buildings. The department is also responsible for managing all major building related capital improvements.

The Public Facilities Department is responsible for maintaining all Town and School parks and athletic fields. Department personnel mow all sports fields and turf areas, trim shrubs, collect rubbish at parks and playgrounds, weed, edge, and mulch shrub beds, with the exemption of flower beds located on school property, which are maintained by the PTO's and areas immediately adjacent to school building foundations which are maintained by school custodians. The staff is also responsible for snow removal and the preparation and clean up for special events.

Over the past decade the Department of Public Facilities has focused on building infrastructure. It has utilized approximately \$10,372,487 of capital funds from the Capital Plan. In addition to capital funds utilized, the Department of Public Facilities has taken advantage of numerous grants and incentives offered by state agencies and the utility. Participation in MA DEP, MA

DOER and MA EOEEA grant programs often are associated with National Grid partial matching incentives.

Facilities Asset Management

The Facilities Department uses a computer based system (SchoolDude) designed to assist with the management and maintenance of facilities, buildings, and assets such as equipment by collecting information, including workforce, tasks, time, and costs, in a central database, and using that data to improve daily and long-term maintenance operations.

Energy Reduction

Over the past ten years, the Town has completed a multitude of projects to reduce energy consumption and cost across municipal and school buildings. Additionally, the Town has participated in programs that directly benefit residents in terms of reducing electricity costs for households as well as providing access to affordable electric charging stations at various locations.

Recreational Facilities

The Recreation Department continues to be managed by the Community Education Department within the School system located at the former Westlands Elementary School. Personnel are responsible for the scheduling of all Town and School recreational fields. The Public Facilities Department is responsible for the maintenance of all Town and School, recreational fields and playgrounds, including, mowing, weeding, mulching and rubbish collection.

There are a number of private sports leagues such as the Chelmsford Youth Baseball, Youth Soccer, Youth Lacrosse and Youth Softball that call specific town and/or school recreational facilities “home”. In most cases the Town maintains the fields with the exception of placing chalk lines on the fields. In several cases, a league has exclusive scheduling and usage rights. The Chelmsford Youth Baseball complex on Route 110 is owned by the Town of Chelmsford and leased to CYB. The lease hold improvements at the complex are owned and maintained by CYB and the fields are scheduled by and used exclusively by CYB. The Chelmsford Youth Soccer Association also has exclusive scheduling and usage of eleven natural turf fields at five sites in Chelmsford. Both of these Associations have invested significant resources into these recreational facilities such as the construction and reconstruction of the fields including leveling and drained, installation of wells and irrigation systems and comprehensive programs to seed, fertilize and mow the fields.

Committees

The Permanent Building Committee continues to assist the Town Manager in the development of financial estimates, project design, and the supervision of construction of municipal building projects. The Permanent Building Committee assists the Town Manager in the supervision over the design and construction of municipal building projects in the areas of selecting professional

assistants, developing contract documents for feasibility studies, the preparation of design plans and specifications, and obtaining bids for the construction, remodeling, alteration, or renovation, including equipping and furnishing, of municipal buildings. The Committee also assists the Town Manager in the development of a long-term capital plan for municipal buildings, including the lease or sale of surplus municipal buildings.

The Energy Conservation Committee continues to assist the Town with identifying, designing and implementing programs and projects for energy conservation, energy efficiency, and renewable energy generation. These programs and projects include all forms of energy use: electricity, natural gas and heating oil, and transportation fuels.

CAPITAL PLANNING PROCESS

The Capital Planning Process is governed by the Town Charter, Section 6-4. “Capital Improvement Program and Long Term Financial Plan”. It states “The town manager shall, in conjunction with the capital planning committee, submit a capital improvement program to the board of selectmen and finance committee at the date fixed by bylaw for the submission of the proposed operating budget unless some other time is provided by bylaw. Annually the board of selectmen, in conjunction with the town manager, shall prepare a five year financial forecast of town revenue, expenditures and the general financial condition of the town.”

The process of preparing the CIP has remained essentially the same over the years. Project requests are reviewed and prioritized by the Town Manager and the Capital Planning Committee. This review is currently performed within the context of an initial municipal bonding target of approximately \$3.2 million per year as determined by the Town’s five year Financial Plan. In 2012, it increased from \$2.5M to \$2.6M. By 2013, it was \$2.9M. During 2016 – 2019, it has been between \$3.2M - \$3.3M. For FY20, the Capital Plan total was \$3.47M. For FY21, approval is being sought for two phases due to COVID (June 2020 & October 2020). The Total Capital for FY21 will be approx. \$3.45M. Originally \$3.8M was approved but later reduced due to budget constraints. The FY22 Capital Budget is expected to be approximately \$3.6M to \$3.8M, with \$3.8M most likely to approved. In recognition of the increasing age of many Town facilities and school buildings, the town has made a commitment to increase Capital funding levels over the years at a level that remains affordable within our non-excluded debt service budget.

Each year, Town Meeting reviews the proposed Capital Budget and adopts by voting to appropriate funds for capital spending. Only Projects within the current fiscal year are authorized. Projects in years 2 and beyond are presented as a guide for future planning and are subject to further review.

RECENT PLANNING EFFORTS

Completed Facility Projects

Since the 2010 Master Plan, the Town has completed a number of significant municipal building projects including: The DPW Facility (including Mechanics Bay and Office Buildout -- \$5,222,000); Center Fire Building (\$8,131,440); Addition to the Country Club (\$215,395).

Green Communities

In 2010, the Town was designated as a Green Community by the Department of Environmental Protection which in turn qualified the Town to apply for annual competitive grants. The table below shows the funds awarded and the projects completed as part of this program since 2014.

5/25/10	\$187,224	to fund a 30 kilowatt (kW) roof-mounted solar photovoltaic (PV) system at the Parker Middle School.
July-14	\$128,732	to fund replacement of rooftop unit at the High School
July-15	\$178,400	to fund energy conservation measures, energy management system and EMS modifications, in municipal facilities including Center Elementary and McCarthy Middle schools, Senior Center, and Library
July-16	\$242,735	to fund energy conservation measures, LED lighting, Havoc control and integration, weatherization, and pneumatic to DDC, in municipal facilities including McCarthy Middle, Center Elementary, and Chelmsford High schools
July-17	\$196,114	to fund energy conservation measures, energy analytics software, LED lighting and retro-commissioning, in municipal facilities including Chelmsford High School, Senior Center, and Police Station
July-18	\$188,009	to fund energy conservation measures, chiller replacement, LED lighting, and HVAC upgrades, in municipal facilities including Police Station, Senior Center, and CPS Administration
August-19	\$89,297	to fund energy conservation measures, building automation system expansion and weatherization, in municipal facilities including Police Station and North Town Hall
August-20	\$100,000	to fund energy conservation measures, LED lighting and weatherization, in municipal facilities including Town Offices and McCarthy Middle School

In order to maintain standing as a Green Community, DEP requires municipalities to complete an annual report and update their Mass Energy Insight database with building additions, vehicle inventory and energy and utility usage with the goal of better understanding and reducing consumption over time.

Energy Savings Performance Contract

In 2013, the Town of Chelmsford and Johnson Controls (JCI) entered into a 20-year Energy Savings Performance Contract (ESPC). The goals of the project were to cut energy costs, provide capital upgrades, standardize equipment, increase the energy efficiency and the reliability of the Town's mechanical and electrical systems, and to maintain or increase occupant comfort and well-being. JCI guaranteed savings from **25** energy conservation measures (ECMs), including lighting fixture and lighting controls retrofits, weatherization, energy management system upgrades, solar PV arrays, LED streetlighting, VFDs, high efficiency transformers and water conservation (among others shown in the table on the following page). Annually, JCI measures and verifies these savings and provides reports and operational guidance to maintain and increase the benefit of the ECMs.

FIM #	FIM Description																									
		Adams Library	Bay School	Central School Admin	Community Education School	DPA Garage	Fire East	Fire North	Fire South	Fire West	Harrison School	High School	Highway Maintenance	McCarty Middle School	Midway Library	Parker Middle School	Police Garage	Police Station	School Center	Senior Center	South Side School	Town Hall	New DPW	Chelmsford Country Club	Chelmsford Town Ice Rink	State Wide
1	Lighting - Fixture Retrofit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	Lighting - Fixture Controls	✓								✓	✓	✓					✓		✓							
3	Building Envelope - Weatherization	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4	Building Envelope - Roof/Wall/Attic Insulation	✓	✓	✓	✓								✓				✓	✓								
5	Building Envelope - Window Replacement			✓			✓										✓	✓								
6	Building Controls - Energy Management System Upgrades	✓	✓	✓	✓				✓	✓	✓	✓	✓				✓		✓	✓						
7	Building Controls - Install VFD on Fans								✓		✓	✓	✓													
8	Heating System - Furnace/Oil Cooling Unit Replacement																	✓								
9	Heating System - Air Handler Replacement																			✓						
10	Heating System - Boiler Replacement																				✓					
12	Heating System - Pipe and Valve Insulation	✓					✓	✓									✓	✓	✓							
13	Heating System - Install New Unit Ventilators, DOG Inclusion	✓	✓	✓					✓	✓			✓								✓					
14	Cooling System - Install New Unit Ventilators w/Oil Cooling, DOG Inclusion								✓																	
15	Cooling System - Chillless Syst. System																			✓						
17	Cooling System - Chiller Replacement																									
18	Pumping System - VFD on Hot Water Pumps																✓									
19	Pumping System - Condensing DRW Unit																✓				✓					
20	Renewable Energy - Photovoltaic Generation	✓	✓					✓	✓		✓		✓				✓	✓		✓	✓					
21	Motors - Energy Efficient Motor Replacement			✓				✓				✓					✓									
24	Water Conservation							✓	✓								✓	✓			✓					
25	Vending Machine Controls	✓	✓					✓	✓		✓	✓					✓	✓		✓			✓			
26	Walk-in Coolers / Walk-in Freezers	✓	✓					✓	✓		✓	✓					✓	✓	✓							
27	Steam to Hot Water Conversion											✓														
28	Energy Efficient Transformers												✓										✓			
29	Street Lights										✓		✓												✓	

Municipal Vulnerability Preparedness

In June 2018, the Town received a Municipal Vulnerability Preparedness (MVP) Planning Grant from the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) to evaluate hazards facing the Town, discuss municipal strengths and vulnerabilities, and identify opportunities to improve the Town's overall resiliency to climate change. These goals were accomplished by following the Community Resiliency Building (CRB) framework, a public-input process developed by The Nature Conservancy, which leverages the local knowledge and experience of community members to develop a Town-specific list of priorities to respond to climate-related hazards. This process was further expanded into an update of Chelmsford's Hazard Mitigation Plan (HMP). Upon completion of the CRB process, the Town was designated by EEA as an MVP Certified community, making the Town eligible for grant funds to implement resiliency planning and improvement projects. In 2019 the Town was awarded \$83,545 to complete design and engineering of two culverts on Dunshire Drive.

Electric Vehicle Incentive Program

Between 2017 and 2020, the Town was awarded a series of grants through MA DEP's Electric Vehicle Incentive Program (EVIP) and installed charging stations at seven locations across Town. Locations include: Rogers Field, Chelmsford High School, Chelmsford Senior Center, Chelmsford Town Offices, DPW, North Chelmsford Town Common, and Adams Library. These charging stations are available to the public 24-7 and support electric car infrastructure locally.

Chelmsford Choice Aggregate

Chelmsford Choice is a Town electricity aggregation program that gives Chelmsford residents and businesses a Town-vetted alternative to National Grid's Basic Service and other electricity

supply offers in the marketplace, consumer protections, and the potential for savings (though savings cannot be guaranteed), while also helping to support Chelmsford's sustainability efforts. Chelmsford residents are automatically signed up for this program and can opt out or opt up to a 100% green option.

Solar

In addition to the Town owning the PV installations across all school buildings and at the DPW, the Town also is an off-taker at Bolton Solar and has a power purchase agreement to purchase a portion of the solar produced from that ground-mount system. The Town has leased land at the decommissioned Swain Landfill to a development company who is currently constructing a solar farm on the property. It is anticipated that the developer will present a portion of production for "community solar" off-takers in Chelmsford, serving to further reduce residential energy costs.

Future Projects

In an effort to continue the momentum gained from the various energy and climate related projects listed above, the Town will continue to undertake projects that enhance preparedness and mitigate energy concerns of the future. Town facilities will be regularly inspected for opportunities to complete weatherization, lighting upgrades, and integration of HVAC controls where possible. Additionally, the Town will continue to assess viable locations for smaller scale solar initiatives as well as building out infrastructure that supports electrification including adding charging stations to Town owned properties.

Feasibility Studies Performed by the Town

The Fire Department undertook a study completed by Criterion Associates in the amount of \$11,500. While a study of all schools was completed by Dore & Whittier in 2016 at a cost of \$200,000.

ISSUES AND OPPORTUNITIES RELATIVE TO FACILITIES

The following list summarizes the ongoing and future issues relative to town-owned and operated facilities:

Town Offices – Continue to address the needs for Vault upgrades and a new elevator which is proposed in 2023.

- **Center and North Town Halls** - The Town is currently using a revolving fund, from rental receipts, to pay for the operating costs of the town hall buildings. However, there is not sufficient revenue to pay for significant capital reinvestment in these facilities.
- **DPW** – A fueling island is proposed in the amount of \$1,300,000 for FY25 which will be the final phase to complete the DPW facility.

- **Libraries** – The only capital project noted for the Libraries is the installation of a retaining wall in FY22 in the amount of \$70,000.
- **Schools** - Although the \$31 million school improvement project has been completed, there remain significant Capital needs within the schools. Many of the project components defeated in the \$110 million and \$86 million proposals were not included in the \$31 million project and therefore still exist today. These include infrastructure improvements for essential upgrades and replacements in order to provide a healthy and safe environment for students and staff in all eight schools; enrollment and instructional space improvements for essential facility improvements required to maintain adequate class size for a basic educational program; high priority instructional space improvements that enhance educational programming; and , instructional / administrative facility improvements to support the schools and building enhancements and improvements designed to provide a better functioning school environment.

This includes full ADA compliance and accessibility, SBA standards related to classroom size and new science rooms as well as items not completed as part of the \$31 million project. Since the \$31 million project was funded with a debt exemption, this allowed the Town to spend six years of capital funds totaling \$5.4 million on the Elementary schools. It appears as though the needs of the elementary schools will be able to be serviced through capital funding. However, the needs of the High School and the two Middle Schools will exceed the Town's ability to complete the needed improvements within the existing constraints of the capital budget.

Therefore, in order to address the full spectrum of needs in the school, a school building project will be necessary in the near future. In the meantime, the Town will continue to utilize capital funds along with rebates and programs from National Grid to carry on the work on the facilities. It is important to note that the Town received \$16,717,263 from MSBA toward the \$31 million project (\$9,925,093—CHS; \$4,076,066—McCarthy; \$2,716,104—Parker).

- **Recreational Facilities** - Existing recreational facilities appear to be serving the majority of community needs. However, according the Facilities Department there is a need for more general / multi-use fields, girls' softball fields and soccer fields.

The recent consolidation of the former Recreation Department into the Community Education Department and Facilities Department has been viewed successfully from a management and operations perspective.

Although the Parks Division staff has been reduced, general field maintenance and annual capital improvements have continued to provide viable recreational facilities. Moving

forward, a comprehensive assessment and needs analysis of recreational facilities and the planning and implementation of future facilities will be needed. During the public input sessions there was a need for more fields expressed. There has been a request for more girls' softball fields.

- **Management and Operations** - The challenges that exist are not viewed as management related, but are attributable to insufficient funding. The Permanent Building Committee continues to develop maps and an inventory of Town owned property. Buildable town owned parcels of property are in the process of being identified. CAD drawings of town owned buildings are being developed which include architectural floor plans and elevations of the buildings. The PBC has discussed working with Nashoba Valley Technical High School to provide this deliverable.

In May 2010, as part of the Green Communities Act, the Town was designated a Green Community in which the Town committed to reducing energy use by 20% over a five year period. This will be accomplished via fuel efficient vehicle replacement, lighting, boiler and hot water pump replacements and solar projects. The Town is currently exploring the possibility of installing solar panels at the Forum, Senior Center, and the Tracy Road Salt Shed. We also continually seek out Grant opportunities through National Grid and the State as they become available for energy efficiency projects.

- **Capital Planning** - A review of the 10 year facilities capital plan, from 2021-2030, indicates a total of \$28.7 million of capital improvements of which \$6.3 million is proposed for town related facilities and the remaining \$22.4 million proposed for school related facilities. It should be noted that of the \$6.3 million for town facilities, \$4.7 million is programmed for major capital projects such as \$3.4 for the North Fire station and \$1.3M for a DPW fueling station. This leaves approximately \$1.6 million for general maintenance items such as building and utility systems.

Of the \$22.4 million programmed for school facilities, \$6.8 million is programmed for the High School; \$6.9 is programmed for the Middle Schools and \$8.7 million is programmed for the Elementary Schools.

Although an annual appropriation is typically included in the general fund (operating) budget for capital expenditures under \$25,000, the single largest source of financing for capital projects is borrowing. The Town has strived over the past five fiscal years to gradually increase the annual bonding target for capital improvement plan (CIP) financing. The recommended CIP total was \$3.4M in FY2020, \$3.45M in FY2021, and is anticipated to be near \$3.8M in FY2022. These levels are closer to annual projected capital needs over the next 10 years. Debt service costs for municipal bonds issued for capital financing are paid

from the Town's operating budget for non-excluded debt, which must remain at an affordable level within funding limitations of the tax levy.

Although the Town has made ongoing, significant investments to maintain and improve public school buildings, it is noteworthy that the last major building improvement project at three secondary schools was completed over 10 years ago. The Town has submitted repeated applications to the Massachusetts School Building Authority during the past few years for a new high school building; however, the State has not approved this project for funding. The Town's seven public schools and community education center continue to age. The most recently constructed school is the high school, which was completed in 1974. With the exception of McCarthy Middle School (1959), most other schools were constructed between 1960 -1970. Any future major school facilities project will likely require a debt exclusion authorization by voters.

RECOMMENDATIONS FOR FACILITIES

8.1 Ensure the continued and timely maintenance of all town and school facilities.

8.2 Plan for a school building project in the future (CHS).

8.3 Continue to utilize the Permanent Building Committee to evaluate space needs for the town, building condition assessments and equipment life cycle analysis to determine long range financial planning of major equipment replacement and large building Capital Expenditures.

8.4 Continue to maximize the asset management software to enable a comprehensive predictive maintenance program for the town and to assist with capital planning projections.

8.5 Continually look to integrate modernized recreational fields and facilities to reduce potential injuries to school age children.

8.6 Fully fund the Facilities and DPW departments in order to ensure that the maintenance of building and grounds.

8.7 Continue to be proactive in the capital planning process. Continue with the capital planning process of allocating a minimum of \$2.5 million per year for capital projects.

8.8 Consider increasing the annual capital improvement budget to reflect a funding level more in line with the current needs and inflation.

8.9 In recognition of the increasing age of many Town facilities and school buildings, we have made a commitment to increase Capital funding levels over the years at a level that remains affordable within our non-excluded debt service budget.

X. IMPLEMENTATION PLAN

The final section of the Master Plan contains a multiple-page table outlining the specific recommendations contained in the Master Plan. These recommendations are intended to advance the goals, policies and actions articulated throughout the document. For each specific recommendation, the primary responsibility for implementation is identified. Most often the primary responsibility rests with the Select Board, Town Manager, Planning Board, Conservation Commission, or the Historical Commission. It is important to note that many town departments, boards, committees and commissions will play a supportive role in implementing and advancing the recommendations.

The following table provides a suggested timeframe for the implementation of the various recommendations over the next decade. Four timeframes have been considered, based on the priority and urgency of the recommendation, the resources available, and the time required to advance the recommendation. The implementation of some recommendations may be immediate, while others may be implemented on a short-term (1-3 years), intermediate (4-6 years) or long-term basis (7 years or more). Some recommendations will be implemented on an ongoing basis, as indicated in the table.

To promote timely implementation of the recommendations, the Town should appoint a Master Plan Implementation Committee. It is suggested that Committee membership include a representative of the following entities:

- Planning Board
- Select Board
- Conservation Commission
- Housing Advisory Board
- Historical Commission
- Town Meeting member or Resident-at-large
- Member of the 2021 Master Plan Committee
- Agricultural Commission
- Age-Friendly Chelmsford Implementation Committee
- DPW (Advisor)
- Town Manager (Advisor)
- Department Community Development (Advisor)

The role of the Master Plan Implementation Committee is to serve as a facilitator and coordinator of the implementation process and to report annually to Town Meeting regarding the Town's progress in implementing the recommendations. In addition, the Committee will assist the Planning Board with any amendments that may be needed to either the Master Plan document or the Implementation Table over time.

Table 10.1: Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
2.10/3.7--The Planning Board should review the goals and objectives of overlay districts and the Inclusionary Zoning Bylaw every two years to determine if updates need to be made.	Land Use and Zoning; Economic Development	Ongoing	Planning Board, Community Development
<p>3.3-Support the efforts of the Chelmsford Economic Development Commission (EDC) in recruiting, retaining and expanding businesses for the community. With the hiring of a fulltime Director of Business Development in 2017, the Town provided additional capacity to support and attract business. The EDC should implement the following:</p> <ul style="list-style-type: none"> • Establish a business resource team to support all existing businesses, as a seamless transition for new business openings. Provide knowledge of local programs and support offerings to include establishing open communication between team members and Middlesex 3 Coalition, Middlesex Community College, UMass Lowell, Chelmsford Public Schools, Chelmsford Business Association, Greater Lowell MassHire Workforce Board, MassDevelopment, MA Office of Business Development, Entrepreneurship Center/Community Teamwork, Inc., MA Manufacturing Extension Partnership, and the Small Business Development Center. • Implement a Roundtable Forum in affiliation with a regional partner, such as Middlesex 3 Coalition, in addressing industry-specific trends, objectives and problem-solving on issues such as workforce development, real estate needs, municipal resources, forecasting plans and unmet needs. • Review municipal requirements for all marijuana establishments: retailer, product manufacturer, transporter, research facilities and laboratories. Determine which type of marijuana facility would be a good match for the community. • Explore the development of a TIF/STA policy to be proactively utilized to promote economic development. • Upon completion of the Route 3 Highway Interchange Market Study, determine the next steps for implementation. • Nurture entrepreneurship for creating maker spaces, incubators, and commercial shared kitchens. • Examine mechanisms for increasing small-scale neighborhood business opportunities in strategic locations. 	Economic Development	Ongoing	Economic Development Commission

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
3.5-Provide added focus on small business success and discover new ways to support and stabilize the business community to encourage more shopping in local establishments and spending locally for trades and services. Secure programming for incentives, storefront interests, business welcoming/ribbon cutting, networking, market space, entrepreneurship and pop-up stores. Establish annual or semi-annual educational series related to current business trends, challenges and future planning.	Economic Development	Ongoing	Community Development, Director of Business Development, Economic Development Commission
3.6-Continue to implement the adopted procedures and processes for expedited permitting to ensure that permitting decisions for industrial, commercial, and mixed-use applications are acted upon within the state's 180-day guidelines. Update the <i>Chelmsford Business and Permitting Guide</i> as needed and in accordance with the new industries being created as a result of COVID-19.	Economic Development	Ongoing	Community Development, Planning Board,
3.9-Work with the Greater Lowell MassHire Workforce Board (GLMWB) to focus on the employment needs of those manufacturing industries with sophisticated technologies in the areas of nanotechnology, robotics, sensors, biometrics, electro-optics, lasers and clean energy. The Chelmsford Business Development Director will provide more direction on the training needs of industry partners, as well as future skill trends.	Economic Development	Ongoing	Business Development Director, Economic Development Commission
3.10-Expand the public/private partnership initiated by the EDC by working with the private sector to fill vacant commercial space and redevelop industrial properties. Through the utilization of the Site Finder Database, the Town can provide updated property information for prospective tenants and businesses, Identify available space and provide the information to private developers and investors. Provide the information on the Town's website so that prospective investors can learn about the opportunities. Review sales trends, lease terms and the types of businesses interested in locating in Chelmsford and make adjustments to the Town's outreach strategy.	Economic Development	Ongoing	Economic Development Commission, Business Development Director

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
3.12-Continue to explore funding opportunities under the Business Improvement District (BID), District Improvement Financing (DIF), Housing Choice Development Grant, and Community Development Block Grant (CDBG) programs in order to assist with the revitalization of Center Village and North Village. Work with the Center Village and North Village Master Plan Committees. Submit an Expression of Interest to DHCD to be eligible for funding under the Community One Stop for Growth program.	Economic Development	Ongoing	Community Development, Business Development Manager
3.14-Continue to focus on the extensive redevelopment and mixed-use opportunities in the Center Village/Chelmsford Street area. Actively pursue federal and state funding to implement critical projects in this area. Continue to use the CEIOD and CVOD to provide zoning flexibility, while maintaining the community character of the Center Village. The property at 9-13 Acton Road offers potential development opportunities, as does the former Mobil gas station and vehicle repair shop.	Economic Development	Ongoing	Community Development, Business Development Manager, Planning Board
3.15-Continue to encourage industrial development in the Route 129 Technology Corridor through the development of vacant parcels and redevelopment of existing buildings. Utilize the CEIOD and Route 129 BAOD overlays to provide zoning flexibility. Implement the recommendations of the Cross Roads at 129 report. Develop a network of stakeholders within the Cross Roads Technology Park to determine their business needs, learn how the Town can better provide resources and communicate on ways to establish a strong partnership. Implement improvements to promote a cohesive area and business destination through signage, wayfinding measures, directories, connectivity of walking paths and collaborative events. Promote the Route 129 Technology Corridor as one of the “premiere corporate destinations in the Merrimack Valley”.	Economic Development	Ongoing	Economic Development Commission, Director of Business Development, Community Development
3.16/4.31-Support the extension of commuter rail service from Lowell to Nashua and Manchester, NH and establish a commuter rail station within North Chelmsford, providing that there is proper community input and that adequate traffic mitigation is provided in North Chelmsford and elsewhere. Establish a Mill Reuse Overlay District in North Chelmsford and implement a District Revitalization program as part of the overall revitalization efforts in Vinal Square.	Economic Development; Transportation and Circulation	Ongoing	Select Board, Community Development, Planning Board

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
4.2-BPAC should continue to monitor and update the Bicycle and Pedestrian Plan.	Transportation and Circulation	Ongoing	Bicycle and Pedestrian Advisory Committee, Age-Friendly Chelmsford Implementation Committee
4.3-Continue to implement the recommendations of the Town Bicycle and Pedestrian Plan. Sidewalk priorities include Route 40, Main Street, Turnpike Road and Westford Street. Bicycle priorities include designation of a bike route connecting Vinal Square and Chelmsford Center, and bike lanes along Littleton Road and Princeton Street.	Transportation and Circulation	Ongoing	Bicycle and Pedestrian Advisory Committee, Age-Friendly Chelmsford Implementation Committee
4.4-Continue to participate in the MassDOT Complete Streets Program to implement the Town's Complete Streets Prioritization Plan.	Transportation and Circulation	Ongoing	Bicycle and Pedestrian Advisory Committee, Age-Friendly Chelmsford Implementation Committee
4.5-Expand shoulders on town roads to minimum four feet width, where possible, to better accommodate bicycles.	Transportation and Circulation	Ongoing	DPW
4.6-Continue town-wide street sweeping to remove sand and other materials from roadway shoulders and sidewalks to comply with the Town's stormwater management program.	Transportation and Circulation	Ongoing	DPW
4.7-Provide erosion control along roadways where flooding conditions can deposit debris, creating a hazard for cyclists and pedestrians.	Transportation and Circulation	Ongoing	DPW
4.8-Incorporate audible signals at signalized intersections, and ensure that all new traffic signals are pedestrian/bicycle actuated.	Transportation and Circulation	Ongoing	DPW
4.9-Erect bike route and "share the road" signs, where appropriate.	Transportation and Circulation	Ongoing	DPW
4.10-Monitor bicycle/pedestrian crash rates at high use areas including Chelmsford Street/Route 110, the Town Center, and Vinal Square.	Transportation and Circulation	Ongoing	Traffic Safety Committee, BPAC, DPW
4.11-Continue to participate in the Safe Routes to School program.	Transportation and Circulation	Ongoing	School Department and DPW
4.12-Continue and expand snow removal efforts on priority sidewalks (Town Center, school routes, Vinal Square, main corridors) and enforce the Town's snow removal bylaw. (The Town currently clears 26 miles of sidewalk in town.)	Transportation and Circulation	Ongoing	DPW

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
4.13-Increase the number of bicycle parking facilities throughout town.	Transportation and Circulation	Ongoing	BPAC, DPW, Age-Friendly Chelmsford Implementation Committee
4.14-Continue to monitor existing parking areas and seek to create additional municipal parking, including designated parking for the Bruce Freeman Rail Trail.	Transportation and Circulation	Ongoing	Community Development, BPAC, DPW
4.15-Require bike racks and sidewalks for new commercial and industrial development projects, where appropriate,	Transportation and Circulation	Ongoing	Planning Board, Community Development, DPW
<p>4.16-The following provisions should be considered as part of the regulatory review process, or through incorporation in design guidelines for development and redevelopment projects:</p> <ul style="list-style-type: none"> • Require developers to provide sidewalks and streetscape amenities (lighting, bicycle parking, benches, etc.) through the project permitting and approval process; • Encourage traffic calming (physical street features that control vehicle speeds); • Provide bicycle and pedestrian accommodations on new or reconstructed local roads; • Require bike lanes and shared use paths, where feasible, practical and safe; • Provide access management by limiting curb cuts (consolidating driveways); • Require strong landscaping plans that enhance the pedestrian experience; • While maintaining consistency with parking requirements under the Town's zoning bylaw, limit the size of individual parking areas, breaking large lots into smaller, more pedestrian- friendly landscaped areas with sidewalks and walkways; and • Require adequate internal bicycle and pedestrian site circulation and connectivity to adjacent sites. 	Transportation and Circulation	Ongoing	Planning Board, Community Development, DPW
4.17-Continue upgrading traffic signal technology throughout town.	Transportation and Circulation	Ongoing	DPW

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
4.18-Continue and expand maintenance of line painting, striping and pavement markings, where the Town is responsible	Transportation and Circulation	Ongoing	DPW
4.19-Strongly promote traffic calming measures in select areas, using objective criteria.	Transportation and Circulation	Ongoing	DPW, Traffic Safety Committee
4.20-Continue enforcement of motor vehicle and pedestrian safety laws and work to address such issues through the police enforcement team.	Transportation and Circulation	Ongoing	Police Department
4.21-Address traffic congestion issues as needed.	Transportation and Circulation	Ongoing	DPW, Traffic Safety Committee, Police Department
4.22-Continue to utilize the pavement management and asset management programs that takes into account all modes of transportation, to ensure that street maintenance and repair occurs in a timely manner, thereby reducing the need to perform more costly reconstruction.	Transportation and Circulation	Ongoing	DPW
4.23-Use the Town's asset management software to continue management of the traffic control device inventory (signage, traffic signals, pavement markings, etc.) and to identify upgrades needed to comply with the requirements of the Manual of Uniform Traffic Control Devices (MUTCD).	Transportation and Circulation	Ongoing	DPW
4.25-Work through NMCOG and MassDOT to address safety issues at identified high crash locations and to implement the I-495 recommendations calling for the signalization of the two I-495 ramp intersections with Route 110.	Transportation and Circulation	Ongoing	DPW, NMCOG and MassDOT
4.34-Increase awareness of Chelmsford residents of the existing transportation options available to them.	Transportation and Circulation	Ongoing	LRTA, Council on Aging, Age-Friendly Chelmsford Implementation Committee
5.1-Continue to build upon the partnership with the Chelmsford Housing Authority to create housing through a proactive approach that maintains and increases the supply and diversity of housing in the community.	Housing	Ongoing	Community Development, Chelmsford Housing Authority, Age-Friendly Chelmsford Implementation Committee

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
5.2-Explore opportunities for the Town to continue to purchase available property and/or utilize funds from the Community Preservation Act (CPA) to address the community's housing needs. A comprehensive review of available town-owned properties has been conducted for potential housing development to meet local needs, but has not yet yielded any viable options.	Housing	Ongoing	Community Development, Chelmsford Housing Authority, Age-Friendly Chelmsford Implementation Committee
5.3-Target the identified Potential Housing sites for development.	Housing	Ongoing	Community Development, Chelmsford Housing Authority
5.4-Continue the implementation of the CEIOD zoning bylaw, Center Village Zoning Overlay, the Route 129 BAOD bylaw and the Inclusionary Housing Bylaw.	Housing	Ongoing	Community Development, Chelmsford Housing Authority, Planning Board
5.5-Preserve affordable housing through the retention of expiring affordable use properties where financially feasible and through the ongoing partnership with the Housing Authority.	Housing	Ongoing	Community Development, Chelmsford Housing Authority
5.6-Prioritize mixed-use redevelopment projects that support the business community and the town's housing goals, and that are consistent with current neighborhood standards.	Housing	Ongoing	Community Development, Chelmsford Housing Authority
5.7-Increase the availability of rental units in the community to address the growing needs of the elderly, young families and special needs populations.	Housing	Ongoing	Community Development, Chelmsford Housing Authority, Age-Friendly Chelmsford Implementation Committee
5.8-Participate in housing rehab programs to support the renovation of older residences.	Housing	Ongoing	Community Development, Chelmsford Housing Authority
5.10-Monitor/engage with developers on proposals. Work with non-profit entities, such as the Common Ground Development Corporation and the Coalition for a Better Acre, to focus on the development of affordable housing through the use of tax title properties. These efforts can complement the work that the Chelmsford Housing Authority does.	Housing	Ongoing	Community Development, Chelmsford Housing Authority, Housing Advisory Board

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
5.15-Continue to streamline, expand, and promote programs that support affordable housing and the ability for residents to age-in-place.	Housing	Ongoing	Community Development, Council on Aging, Chelmsford Housing Authority, Age-Friendly Chelmsford Implementation Committee
5.16-Increase awareness of current housing options and support the development of new options for Chelmsford residents to age in place through public forums, new bylaws and outreach by stakeholders.	Housing	Ongoing	Community Development, Council on Aging, Chelmsford Housing Authority, Age-Friendly Chelmsford Implementation Committee
5.17-Educate Chelmsford residents about local options that help seniors remain in their homes, including tax deferrals for existing local options that help seniors remain in their homes, home modification programs to make their home more accessible, and other initiatives.	Housing	Ongoing	Council on Aging, Chelmsford Housing Authority
6.1-Continue to implement the recommendations and action items contained in the 2017 Open Space and Recreation Plan.	Natural Resources	Ongoing	Community Development, Conservation Commission, School Department, DPW
6.2-Continue to implement the recommendations and action items in the 2019 Municipal Vulnerability Preparedness (MVP) Plan: <ul style="list-style-type: none"> • Create landscaping and maintain trees along roadways • Continue existing Hardy Tree Program • Establish dedicated funding for invasive species removal and public education 	Natural Resources	Ongoing	Conservation Commission, Community Development, DPW, Emergency Management, Tree Warden
6.3-Continue to implement the recommendations contained in the regional and 2020 Town Hazard Mitigation Plan: <ul style="list-style-type: none"> • Create landscaping and maintain trees along roadways • Continue existing Hardy Tree Program • Establish dedicated funding for invasive species removal and public education • Implement roadside low-impact development in an effort to mitigate flash flooding • Conduct stream and waterway maintenance • Incorporate hazard mitigation into design criteria of local regulations 	Natural Resources	Ongoing	Conservation Commission, Community Development, DPW, Emergency Management, Tree Warden

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
6.4-Continue to implement the recommendations and action items contained in the 2020 Stormwater Management Master Plan: <ul style="list-style-type: none"> • Public education and outreach • Public involvement and participation • Illicit discharge detection and elimination (IIDDE) program • Construction site stormwater runoff control • Good housekeeping and pollution prevention for permittee owned operations • Fully map the stormwater system with catchments • Perform outfall screen/testing • Retrofit sites with stormwater improvements • Increase street sweeping to twice a year • Clean all catch basins once they are over 50% full • Report on all retrofits by tracking the phosphorus removal every year • Increased site inspection • Inspection/inventory of private stormwater systems • Site Plan Review to include phosphorus removal requirements • Stricter stormwater bylaws at the local level 	Natural Resources	Ongoing	Conservation Commission, DPW, Planning Board, Community Development
6.5-The Town's subdivision regulations should be modified to allow and encourage the use of Low Impact Development (LID) techniques for managing stormwater as part of the Town's Phase II stormwater program.	Natural Resources	Ongoing	Conservation Commission, Community Development, DPW, Planning Board
6.6-The use of deicing chemicals and lawn fertilizers should be minimized, and the Town should require an Integrated Pest Management (IPM) program for sizable development proposals. In addition, an IPM program should be utilized for addressing turf maintenance issues at the golf course and at the town's playing fields by the appropriate board or department.	Natural Resources	Ongoing	DPW, Conservation Commission, Planning Board, Board of Health
6.7-A public education and awareness program that encourages the protection of natural resources should be required for town residents and the schools.	Natural Resources	Ongoing	Conservation Commission, Community Development, School Department
6.10-The Town should work with property owners to preserve the town's remaining agricultural lands. The Town should also consider purchasing development rights for these agricultural properties or purchasing the properties in fee, where feasible and appropriate. Over the last decade, the Town been very successful in preserving agricultural lands using CPC funds.	Natural Resources	Ongoing	Agricultural Commission, Community Preservation Committee

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
6.11-Work with DEP, the surrounding communities, environmental organizations and neighborhood residents to develop a program to improve environmental conditions and water quality in the town's waterways.	Natural Resources	Ongoing	Conservation Commission, DPW, environmental organizations, residents and DEP
6.12-Explore continued chemical treatments for invasive plants at Hart's Pond and Freeman Lake.	Natural Resources	Ongoing	Conservation Commission, Board of Health, DEP
<p>7.1-The Historical Commission should continue to implement the 2013 Historic and Cultural Resources Preservation Plan strategies to maintain, preserve, protect and promote the historic and cultural assets of the community. Major strategies contained in the Preservation Plan include:</p> <ul style="list-style-type: none"> Increasing capacity of local preservation and cultural groups increasing membership, communication, and collaborative opportunities for town committees and community organizations; Increasing technical support for town committees; Consider certified local government designation; Continue documentation of historic resources in Chelmsford Historic Resources Inventory; Explore Archaeological Reconnaissance Surveys; Continue Historic and Cultural advocacy and education; Expand historic sign program; Explore a Preservation Awards Program; Explore Cultural Districts; Continue public education; and Incorporate preservation interests into Chelmsford's zoning bylaw and development review process. 	Cultural and Historic Resources	Ongoing	Community Preservation Committee, Historic District Commission, Historical Committee, Community Development, Planning Board
7.2-An information booth should be established on the Town Common and/or in the Old Town Hall to promote tourism and benefit the local cultural economy. In addition, the Town should encourage the State to reopen the Visitor's Center at the rest area on I-495 northbound in Chelmsford.	Cultural and Historic Resources	Ongoing	Historic District Commission, Community Development, MassDOT

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
7.3-Design guidelines established for areas throughout the community should emphasize the importance of historic preservation.	Cultural and Historic Resources	Ongoing	Historic District Commission, Historical Committee, Community Development, Planning Board
7.4-The Town's subdivision regulations and zoning bylaw should be modified to provide the development community with guidance relative to the preservation of historic resources.	Cultural and Historic Resources	Ongoing	Community Development, Planning Board
7.7-Resources should be made available to provide support to several boards and commissions, including the Historical District Commission, Historical Committee and Agricultural Commission. This should include assistance in applying for grant funds.	Cultural and Historic Resources	Ongoing	Community Development, Historic District Commission, Community Preservation Committee, Agricultural Commission
7.8-Continue to implement the program for façade improvements located in a designated areas.	Cultural and Historic Resources	Ongoing	Community Development, Historic District Commission, Community Preservation Committee
7.9-Continue to institute procedures and train staff in acquiring, storing, and preserving historical records and documents. The Town should also consider constructing an Archives Center to stabilize and preserve its historic records.	Cultural and Historic Resources	Ongoing/ Intermediate	Historic District Commission, Town Clerk
8.3-Continue to address ADA/accessibility issues for town-owned open space and recreation properties as resources become available.	Open Space and Recreation	Ongoing	Community Development, Conservation Commission, Open Space Stewards, DPW, Community Preservation Committee, Age-Friendly Chelmsford Implementation Committee
8.5-Encourage stewardship and increase public education on recreation and conservation resources, programs and facilities available to residents.	Open Space and recreation	Ongoing	Conservation Commission, Open Space Stewards
8.6-Continue to pursue grants for implementing capital improvement projects at recreational facilities, including school athletic fields, parks, and playgrounds. Future initiatives will likely focus on the High School, Varney Playground, Southwell Field, and the Community ED Summer Camp program.	Open Space and Recreation	Ongoing	Community Development, DPW, School Department, Conservation Commission

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
8.8-Seek to acquire priority properties benefitting agricultural preservation.	Open Space and Recreation	Ongoing	Community Development, Conservation Commission, Agricultural Commission
8.10-Support and maintain a regular Farmers' Market so that residents have access to locally grown fresh food and farmers have a readily available market for their crops and products.	Open Space and Recreation	Ongoing	Select Board, Agricultural Commission
8.11-Encourage and support non-commercial agriculture through community gardens.	Open Space and Recreation	Ongoing	Select Board, Agricultural Commission
9.1-Ensure the continued and timely maintenance of all town and school facilities.	Facilities and Services	Ongoing	DPW/Facilities and School Department
9.3-Continue to utilize the Permanent Building Committee to evaluate space needs for the town, building condition assessments and equipment life cycle analysis to determine long range financial planning of major equipment replacement and large building capital expenditures.	Facilities and Services	Ongoing	Permanent Building Committee, DPW/Facilities, Select Board, Capital Planning Committee
9.4-Continue to maximize the asset management software to enable a comprehensive predictive maintenance program for the town and to assist with capital planning projections.	Facilities and Services	Ongoing	DPW/Facilities, Permanent Building Committee, Capital Planning Committee
9.5-Continually look to integrate modernized recreational fields and facilities to reduce potential injuries to school children.	Facilities and Services	Ongoing	DPW/Facilities, School Department
9.6-Fully fund the Facilities and DPW departments in order to ensure the maintenance of buildings and grounds.	Facilities and Services	Ongoing	DPW/Facilities, Select Board, Town Meeting
9.7-Continue to be proactive in the capital planning process. Continue with the capital planning process of allocating a minimum of \$2.5 million per year for capital projects.	Facilities and Services	Ongoing	DPW/Facilities, Capital Planning Committee, Select Board, Town Meeting
2.1-As recommended in the 2010 Master Plan, the Planning Board should investigate whether additional improvements to the design review process are warranted for commercial/industrial and multi-family development.	Land Use and Zoning	Short-term	Community Development, Planning Board
2.2-In late 2022, review the impact of the Section 195-8 revisions implemented in 2019 to determine whether the revisions adequately addressed town-wide development issues related to pre-existing on-conforming single- and two-family properties, or if zoning revisions continue to be needed.	Land Use and Zoning	Short-term	Community Development, Planning Board

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
2.3-Contact mill owners to determine if modifying the CEIOD so that it applies to all mill properties (including those industrially zoned) would be beneficial. Alternatively, work toward establishing a Mill Reuse Overlay District and Bylaw to provide greater flexibility in reusing or redeveloping the existing structures.	Land Use and Zoning	Short-term	Community Development, Planning Board
2.4-Town Manager/Select Board should appoint a representative to monitor the Lowell to Nashua/Manchester commuter rail extension project, and position the community to take advantage of transit-oriented development opportunities should the project go forward.	Land Use and Zoning; Transportation and Circulation	Short-term	Town Manager, Select Board
2.5-The Planning Board should conduct a town-wide analysis of the zoning map and ground conditions in order to eliminate land use conflicts between residential and commercial/industrial uses.	Land Use and Zoning	Short-term	Community Development, Planning Board
2.6/3.2-The Town should revise its zoning bylaw to accommodate pop-up stores, e-commerce, fulfillment centers and ghost kitchens/dark stores to address shifting markets for brick and mortar retail and office space, by allowing these uses by right or by special permit, in a manner that is not detrimental to the neighborhood, as determined by the Planning Board.	Land Use and Zoning; Economic Development	Short-term	Community Development, Planning Board
2.7-Determine whether the affordability requirement within the Inclusionary Housing Bylaw should be modified now that the Town has achieved its 10% subsidized housing inventory (SHI) goal.	Land Use and Zoning	Short-term	Planning Board, Community Development, Housing Advisory Board
2.8-Amend the development regulations to encourage low impact development (LID) as a means of managing stormwater and assisting the community with compliance with EPA's 2016 MS4 Permit for Massachusetts.	Land Use and Zoning	Short-term	Planning Board, Community Development, DPW, Conservation Commission
3.1-Work with NMCOG and communities across the region to address the economic impacts of COVID-19, using resources provided by an EDA CARES Act grant to prepare an Economic Recovery and Resiliency Plan for Greater Lowell and to increase the capacity of local communities in accessing additional grants at the federal and state levels.	Economic Development	Short-term	Community Development, Town Manager, Select Board, CEDS Committee members

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
3.4-Build upon the Chelmsford Brand Strategy developed by the EDC in April 2010 by incorporating it within the regional “brand strategy” being developed for the Route 3 corridor from Route 128 to I-495. Utilize the “brand strategy” for the Route 129 Cross Roads area. This strategy will expand the Cross Road identity using the high-value existing tenants to establish credibility through prominent and prevalent companies with promoting their notable achievements, Endorsements for the “package deal” of technical assistance, regional partnerships, expedited permitting, zoning accommodations, direct municipal team support, and educational resources for technology- driven, high-value industries.	Economic Development	Short-term	Planning Board, Community Development
3.11-Develop strategies to increase the capacity of the sewer and water systems to meet the growing demands of the business community and local residents. Implement the recommendations in the Weston & Sampson report to address the sewer capacity issues and to determine whether additional capacity will be available through the Lowell Regional Wastewater Utility or the Town of Billerica. Receive support from Town Meeting in moving ahead with these recommendations. Develop a Five-Year Plan to address the sewer capacity issues and work with NMCOG, the City of Lowell and other Greater Lowell communities to collectively address this issue. The economic future of the region depends on this issue.	Economic Development	Short-term	Town Manager, DPW, Sewer Commission, Select Board, Community Development
3.13-Based upon the results of the Chelmsford 2018 Town-wide Business Survey, the EDC, the Director of Business Development and the Community Development Director should develop a program to address the identified needs of the business community. There should also be an effort to determine what the commercial needs are in the community. The EDC, Director of Business Development and Community Development Director could then work with MassDevelopment and the Massachusetts Alliance for Economic Development (MassEcon) to identify specific businesses that would address these needs.	Economic Development	Short-term	Economic Development Commission, Director of Business Development, Community Development
3.17-Build upon the redevelopment opportunities in the Chelmsford Street/Route 110/Route 3 Shopping District. Once the Route 3 Highway Interchange Market Study is completed, the Town should determine what actions may be considered for implementation and/or further study with a focus on determining what redevelopment opportunities are available in this area. These redevelopment projects will attract additional private investment to this area.	Economic Development	Short-term	Economic Development Commission, Director of Business Development, Community Development, Planning Board

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
3.18-Prioritize the Priority Economic Development Sites for the EDC and Community Development Department to implement.	Economic Development	Short-term	Economic Development Commission, Community Development Department, Director of Business Development
4.1-Establish an ongoing bicycle and pedestrian safety program as a joint effort between the School Department, Police Department, Bicycle and Pedestrian Advisory Committee (BPAC) and the Traffic Safety Subcommittee, in conjunction with the Department of Public Works.	Transportation and Circulation	Short-term	School Department, Police Department, Bicycle and Pedestrian Advisory Committee, Traffic Safety Subcommittee, DPW, Age-Friendly Chelmsford Implementation Committee
4.24 Implement the transportation recommendations outlined in the Drum Hill Master Plan Update.	Transportation and Circulation	Short-term	DPW
4.28-Develop streetscape, traffic improvements and an overall conceptual design in Vinal Square based on public engagement and input. Work with NMCOG and MassDOT to initiate a TIP project for Vinal Square improvements based on these recommendations and the final concept plan.	Transportation and Circulation	Short-term	Community Development, Vinal Square Committee, DPW, NMCOG, MassDOT
4.29-Update the parking requirements within the Town's zoning bylaw to be consistent with current industry standards.	Transportation and Circulation	Short-term	Planning Board, Community Development
4.30-Increase the developer contribution requirements for new parking space additions under Section 53G.	Transportation and Circulation	Short-term	Planning Board, Community Development
4.33-Establish a Transportation Advisory Committee to provide input on transportation-related issues, and to outline a clear process for addressing resident concerns. This committee should have representation from Planning, the Police Department, Fire Department, Engineering, DPW, BPAC, the Age-Friendly Chelmsford Implementation Committee and the town's ADA compliance official,	Transportation and Circulation	Short-term	Community Development, Police Department, Fire Department, DPW/Engineering, BPAC, Age-Friendly Chelmsford Implementation Committee, ADA Compliance Officer
4.35-Continue to assess and enhance the capabilities of existing transportation options to address the unmet needs of older/disabled residents for reliable, adequate and affordable transportation services.	Transportation and Circulation	Short-term	Council on Aging, ADA Compliance Officer, Age-Friendly Chelmsford Implementation Committee

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
5.9-Explore the development of an Affordable Housing Trust through the establishment of the Housing Stabilization fund to supplement the current resources made available through CPA funds.	Housing	Short-term	Community Development, Select Board, Chelmsford Housing Authority
5.11-Submit an Expression of Interest to DHCD to be eligible for funding under the Community One Stop for Growth program. Request certification as a Housing Choice community to be eligible for Housing Choice Infrastructure grants. Maintain a balance between housing growth and maintaining the quality of life in Chelmsford.	Housing	Short-term	Community Development, DPW
5.12-Address infrastructure capacity issues, such as water and sewer that would limit housing opportunities in the future. Develop a Five-Year Plan to address the sewer capacity issues and work with NMCOG, the City of Lowell and the other Greater Lowell communities to collectively address this issue. The economic future of the region depends on resolving this issue.	Housing	Short-term	Town Manager, Select Board, Community Development, DPW, Sewer Commission
5.13-The Housing Advisory Board should continue to monitor progress made through the implementation of the <i>2017 Affordable Housing Production Plan</i> to be consistent with the new regulations from the Massachusetts Department of Housing and Community Development (DHCD) and begin to plan for its update in 2022.	Housing	Short-term	Community Development, Housing Advisory Board, Chelmsford Housing Authority
5.14-Explore options available for additional “in law” or limited accessory apartments, as well as temporary “granny pods” and/or tiny houses. Address the need for “starter homes” to attract new families and diversify the housing stock.	Housing	Short-term	Community Development, Housing Advisory Board, Age-Friendly Chelmsford Implementation Committee
5.18-Create a program for affordable services (i.e. a clearinghouse of handyman services) to help those in need with home chores, maintenance, contractor referral and/or help with project management.	Housing	Short-term	Council on Aging, Age-Friendly Chelmsford Implementation Committee
6.9-TheTown should develop and implement an invasive species management plan. While this remains a significant issue the development of a town wide plan is also a significant challenge. To date the Town has viewed this on a case by base project basis.	Natural Resources	Short-term	DPW and Conservation Commission

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
7.6-Continued efforts to routinely maintain and preserve Town-owned historic structures must be improved. A maintenance and preservation plan is needed for all Town-owned buildings, including its historic properties. The need for improved maintenance and preservation of these structures should be reflected in the funding priorities of the Community Preservation Committee.	Cultural and Historic Resources	Short-term	Community Development, Historic District Commission, Community Preservation Committee, Historical Committee
7.10-The Town's Scenic Roads Bylaw and administrative procedures should be reviewed to determine whether they are practical, enforceable, up-to-date, and consistent with the practices and operating procedures of the town. Town staff, boards and commissions should be educated in terms of the significance of the bylaw and the permitting procedures that are to be followed.	Cultural and Historic Resources	Short-term	Community Development, Planning Board, Tree Warden, DPW
7.11-The concept of establishing historic districts in North Chelmsford and in South Chelmsford should be further explored. An educational process should be initiated so that citizens understand the significance, restrictions and impact of creating a National Register district vs. a local historic district.	Cultural and Historic Resources	Short-term	Community Development, Historic District Commission, Historical Committee
7.12-Consider options for creating new cultural events with particular emphasis on Center Village and Vinal Square.	Cultural and Historic Resources	Short-term	Community Development, Historic District Commission, Historical Committee
8.1-Gauge the level of use for open space and recreation properties and facilities, and evaluate maintenance needs. Develop management and maintenance plans based on the outcome of the assessment.	Open Space and Recreation	Short-term	Community Development, Conservation Commission, Open Space Stewards, CPC, School Department
8.2-Form an Open Space and Recreation Committee.	Open Space and Recreation	Short-term	Community Development, Conservation Commission, Open Space Stewards, Select Board, Age-Friendly Chelmsford Implementation Committee
8.4-Continue to monitor potential recreation parcels and prioritize those that enhance connectivity to existing recreation and conservation properties.	Open Space and Recreation	Short-term	Community Development, Conservation Commission

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
8.9-Review and revise bylaws and regulations to better accommodate agricultural enterprises and small lot farming. Seek opportunities to acquire agricultural lands that can be leased through the application of Chapter 61A. Lease additional town-owned lands for agricultural purposes.	Open Space and Recreation	Short-term	Community Development, Planning Board, Conservation Commission, Agricultural Commission
8.13-Promote and create opportunities for seniors to use public parks and playgrounds. Market programs for older adults to “walk in the park” or “coffee in the park”. Brainstorm with Senior Center kitchen staff to create opportunities for outdoor events. Strengthen the connection between Senior Center and Varney Park for dedicated age-friendly activities (e.g. bocce court, fitness circuit).	Open Space and Recreation	Short-term	Council on Aging, DPW, Conservation Commission, Community Development, Age-Friendly Chelmsford Implementation Committee
8.14 -Hire a Recreation Director.	Open Space and Recreation	Short-term	Town Manager, Select Board
9.2-Plan for a school building project in the future.	Facilities and Services	Short-term	School Department, School Committee, MSBA
9.8-Consider increasing the annual capital improvement budget to reflect a funding level in line with the current needs and inflation. In recognition of the increasing age of many Town facilities and school buildings, we have made a commitment to increase capital funding levels over the years at a level that remains affordable within our non-excluded debt service budget.	Facilities and Services	Short-term	DPW/Facilities, Capital Planning Committee, Select Board, Town Meeting
2.9-Consider modifying the zoning bylaw and working with the Board of Health to allow and promote agriculture-related activities, such as farm retail sales and artisanal farms in residential districts, farm co-ops, community kitchens, farm-to-table restaurants, and food processing facilities (up to a certain size), as a means of preserving agricultural lands and supporting the agricultural economy.	Land Use and Zoning	Intermediate	Planning Board, Community Development, Agricultural Commission
3.8-Explore the establishment of a mixed-use Redevelopment District along Route 110 from the Westford side of Hunt Road to Chamberlain Road. Promote mixed-use development projects on Chelmsford Street from the Town Center to Fletcher Street, along Technology Drive and at the mill complexes of North Chelmsford (Mill Reuse Overlay District). Utilize the CEIOD to address properties in disrepair or underutilized. Implement a redevelopment strategy for small-scale neighborhood businesses that will encourage the highest and best use for aging properties that are vacant or being sold. This strategy will help to minimize the impact upon sewer capacity, while increasing tax revenues for the community.	Economic Development	Intermediate	Community Development, Planning Board

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
3.19-Explore opportunities to incentivize private development through the establishment of a redevelopment authority or industrial development finance authority, or by working with the Lowell Development Finance Corporation (LDFC).	Economic Development	Intermediate	Select Board, Community Development, Economic Development Commission
4.27-Continue to monitor parking utilization and demand in the Town Center and Vinal Square and implement recommendations outlined parking studies conducted at each location.	Transportation and Circulation	Intermediate	Community Development, DPW
4.32-The Town should work with the LRTA on the following transit service initiatives: <ul style="list-style-type: none"> • Provide more frequent transit service along the town's major roadways including Route 110, Route 4, Route 129 and Route 27; • Expand transit service between the High School and Route 110, Route 129 and Riverneck Road to provide improved access to after-school jobs for students; • Provide additional transit service between the town's larger neighborhoods and its major retail and business areas; • Evaluate the need and impact of creating a transit hub in Chelmsford with shelter and seating; • Establish clearly marked bus stops with shelters, posted route maps and schedule along all bus routes; and • Extend transit hours of operation for evenings and weekends. 	Transportation and Circulation	Intermediate	Town Manager, Select Board
6.8-A forestry management program should be developed for the community's remaining forested lands. In addition, the Town should establish policies for tree protection, tree maintenance, and tree replacement for new development and redevelopment proposals undergoing site plan review. The public should be made aware of the Select Board's tree protection and replacement policy.	Natural Resources	Intermediate	DPW, Conservation Commission, Planning Board, Community Development, Tree Warden, Select Board
7.5-The Town should participate in DCR's Historic Landscape Preservation Initiative, in order to develop an integrated and proactive approach to heritage landscape preservation.	Cultural and Historic Resources	Intermediate	Community Development, Historical Committee, Historic District Commission
8.7-Implement a reuse plan for the Warren Pohl Farm.	Open Space and Recreation	Intermediate	Community Development, Conservation Commission, Agricultural Commission

Table 10.1 (cont'd): Master Plan Implementation Plan

Recommendation	Applicable Master Plan Elements	Timeframe	Stakeholders
8.12-Install age appropriate fitness equipment, benches, shelters and walking trails. Encourage modifications that address specific mobility and logistical needs. Use the Wichita, Kansas Grandparent Park as a guide.	Open Space and Recreation	Intermediate	Council on Aging, Community Development, DPW, Conservation Commission, Age-Friendly Chelmsford Implementation Committee
4.26-Implement the recommendations that have not been completed for the fifteen intersections listed in the Transportation and Circulation chapter of the Master Plan.	Transportation and Circulation	Long-term	DPW